



FLOOD MANAGEMENT PLAN
INCORPORATING FLOOD EMEEGNCY
RESPONSE PLAN

HUNTINGWOOD INDUSTRIAL ESTATE

AUGUSTA STREET, BLACKTOWN, NSW

Prepared for:

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Document Verification	
Project	Augusta Street Warehouse and Distribution Centre
Document Title	Flood Management Plan Incorporating Flood Emergency Response Plan
Project Number	CO13904.03
Description	Flood Management Plan for Proposed Industrial Facility
File Name	CO13904.03-16b.rpt

	Name	Title
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Document History		
Date	Revision	Issued to
14 Nov 2024	DRAFT A	TfHPT – Mr Louis Towing
15 Jan 2025	FINAL B	TfHPT – Mr Louis Towing

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1 INTRODUCTION

Costin Roe Consulting Pty Ltd has been commissioned by The Trustee for Huntingwood Property Trust to prepare this Flood Management Plan (FMP) for the industrial development located at Augusta Street, Blacktown.

This Flood Management Plan (FMP) addressed the flooding present on the proposed development site and incorporates a Flood Emergency Response Plan (FERP) for the Augusta Street, Blackton development.

This plan details the site responses to flooding including predicted flood levels, flood warnings and flood notifications, evacuation and refuge protocols and awareness training for employees and contractors.

The requirements outlined in this report are consistent with the provisions of the NSW Flood Risk Management Manual (2023).

The subject area of this FMP/FERP comprises emergency responses for the construction and operational phases of the development.

This plan addresses the requirements of the Department of Planning, Industry and Environment Development Approval SSD-36138263, as included in Table 1.1 below.

Table 1.1 – Relevant Development Consent Conditions

SSD-36138263	CC Condition	How it is Addressed
B37	Prior to the commencement of construction of the development, the Applicant must prepare a Construction Flood Emergency Response Plan (CFERP). The CFERP must form part of the CEMP required by conditions C2 and must:	Refer to this report for the Flood Emergency Response Plan.
	a) be prepared by a suitably qualified and experienced person(s);	
	b) address the provisions of the Floodplain risk management manual (DPE, 2023) and Support for emergency management planning (DPE, 2023); and	Refer to Section 3 of this report for guidelines adopted for the FERP.
	c) include details of:	

	i. the flood emergency responses for both construction of the development and operation phases of the development;	Refer to Section 7 for the flood emergency responses.
	ii. predicted flood levels;	Refer to Section 4 for a discussion on flood behaviour.
	iii. flood warning time and flood notification;	Refer to Section 6 & Section 7 for Flood Safety, evacuation and response
	iv. assembly points and evacuation routes;	Refer to Section 6 & Section 7 for Flood Safety, evacuation and response
	v. evacuation and refuge protocols; and	Refer to Section 6 for Flood Safety, evacuation and response
	vi. awareness training for employees and contractors.	refer to Section 6 of this report for the flood education, awareness and preparedness program.
B39	Prior to the commencement of operation of the development, the Applicant must update the CFERP for the purposes of operation of the development in an Operational Flood Emergency Response Plan (OFERP). The OFERP must:	Refer to this report for the Flood Emergency Response Plan.
	(a) be prepared by a suitably qualified and experienced person(s);	
	(b) address the provisions of the Floodplain risk management manual (DPE, 2023) and Support for emergency management planning (DPE, 2023); and	Refer to Section 3 of this report for guidelines adopted for the FERP.
	(c) include details of:	
	(i) the flood emergency responses for both construction and operation phases of the development;	Refer to Section 7 for the flood emergency responses.
	(ii) predicted flood levels;	Refer to Section 4 for a discussion on flood behaviour.

	(iii) flood warning time and flood notification;	Refer to Section 6 & Section 7 for Flood Safety, evacuation and response.
	(iv) assembly points and evacuation routes;	Refer to Section 6 & Section 7 for Flood Safety, evacuation and response.
	(v) evacuation and refuge protocols; and	Refer to Section 6 for Flood Safety, evacuation and response.
	(vi) awareness training for employees and contractors.	refer to Section 6 of this report for the flood education, awareness and preparedness program.

2 DEVELOPMENT SITE

2.1 Site Description

The property is located within the Blacktown City Council (BCC) local government area (LGA), as shown in **Figure 2.1 and 2.2**. The site is also located within the Huntingwood Precinct of the Western Sydney Employment Lands, an established industrial precinct.

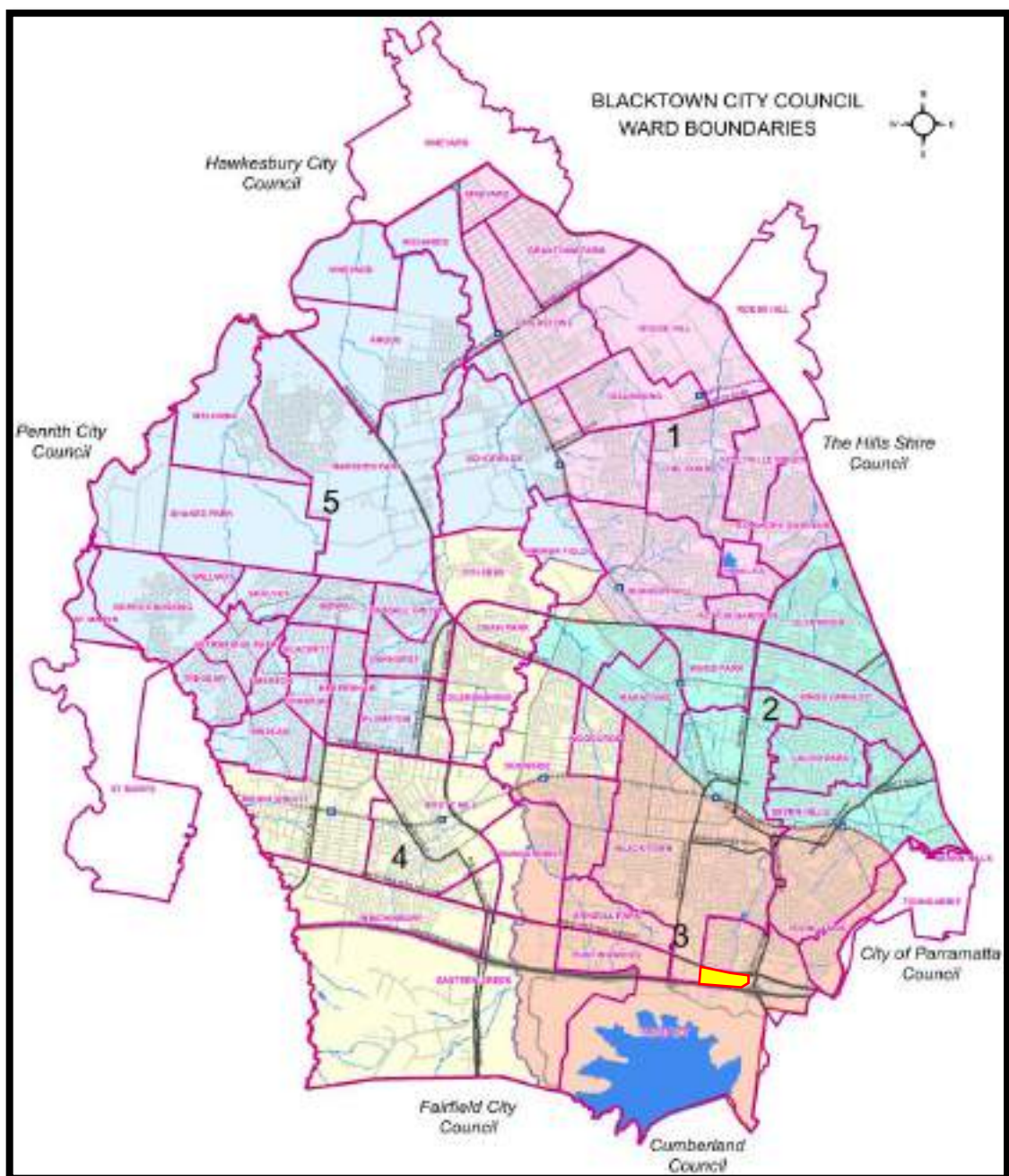


Figure 2.1. Site Location within the Blacktown Council LGA (Source: Blacktown City Council Ward Map)



Figure 2.2. Site Location and Aerial Imagery (Source: Nearmap 16 June 2022)

2.2 Existing Topography & Description

The total site area is approximately 26.64 Ha. The site can be divided into four separate sub-catchment areas by the existing riparian corridors, somewhat central ridge line and Augusta Street.

The site is approximately 1100m in length fronting both the Western Motorway (south) and the Great Western Highway (GWH), and approximately 270m in width fronting Flushcombe Road.

To the north is the GWH and a residential area, to the east is a small portion of Industrial land (understood to be Transport for NSW (TfNSW) land) as well as the Prospect Highway and a cemetery, to the south is the Western Motorway as well as a waterpark (Raging Waters Sydney, temporarily closed) and a drive-in movie theatre. Further to the west are existing industrial developments.

The site is crossed by two watercourses as shown in **Figures 2.2** and **2.3**. Blacktown Creek towards the east of the site and the Unnamed Watercourse to the west of the site. Blacktown Creek is currently degraded with little to no native vegetation.

The existing site generally grades from two ridges on the site, draining east and west from the ridgeline, towards a riparian corridor and drainage swale, which drains from the south to the north, as seen in **Figure 2.3**.

Discharge from the site is via Blacktown Creek, the Unnamed Watercourse and a small portion draining towards the existing stormwater infrastructure in the north-eastern corner of the site. The drainage under the GWH via existing culverts from both the Blacktown Creek and the Unnamed Watercourse is controlled with fitted aperture plates (Source: Flood Study and Stormwater Management by Hyder Consulting, 18 January 2010).

The highest level on site is at RL91.36m AHD in the south-eastern corner of the site and the lowest is at RL66.01m AHD within the Blacktown Creek.



Figure 2.3. Site General overland flow drainage (Source: Nearmap 16 June 2022)

Existing fill material comprising clay material mixed with debris from demolition (e.g. tiles, bricks and glass bottles) were observed during the geotechnical investigation at localised areas, showing some historical disturbance of the existing site.

Augusta Street (asphalt surface) enters the site from Flushcombe road and crosses the existing Unnamed Watercourse over two 900mm dia. RCPs.

2.3 Proposed Development

The proposed SSDA seeks approval to redevelop the site to accommodate warehouses and distribution centres with the following:

- Site establishment works, including tree removal, minor excavation / bulk earthworks.
- Construction and operation of four (4) new warehouse buildings comprising a multi-level warehouse building on the eastern portion of the site and three single storey warehouse buildings on the western and central portion of the site. The warehouse buildings will include ancillary office space and indicative warehouse fit out works including warehouse racking.
- The warehouse and distribution tenancies are proposed to be operated 24 hours per day, 7 days per week.
- Other associated works including landscaping, at-grade car parking and general site improvements.
- Business and building identification signage including wayfinding signage.
- Vehicle access provided via Augusta Street and a new proposed access from the Great Western Highway
- Lot consolidation of properties.
- The indicative site layout prepared by Pace Architects has been included in **Figure 2.4.**



Figure 2.4. Proposed Development – Concept Layout Plan

2.4 Climate and Meteorology

The Blacktown area experiences relatively mild temperatures and moderate rainfall, with an annual average of 932.2mm of rainfall according to records from Collins Street, Seven Hills (Station 067026 since 1950) which is 4.2km north-east of the development site.

Typically, the wettest month (mean rainfall) is February and the driest is usually July.

The annual mean minimum temperature is 11.2°C and the mean maximum temperature is 23.4°C. The hottest month is typically December (mean maximum of 28.4°C), and July is the coldest month (mean minimum of 4.5°C).

Climate statistics and average annual rainfall data and rainfall patterns relevant to this site (as sourced from Australia Bureau of Meteorology (BOM)) are included in reference in **Appendix B** of this **FERP**.

3 GENERAL REQUIREMENTS

3.1 General Requirements Introduction

This FMP has been prepared with the purpose of providing an understanding of flood behaviour to the facility owners, management, and contractors during operation and construction of the development.

This document has been completed with consideration to the following (Referenced Documents – Development Owners and Management need to ensure latest revisions of referenced documents is consulted in between periodic review of FERP):

- Flood Risk Management Manual (2023)
- NSW Government (2023). Flood Impact and Risk Assessment. Flood Risk management guideline LU01;
- Hyder (2010) – Flood Study and Stormwater Management – Huntingwood East Precinct, Blacktown (document ref: DN00214) dated 18 January 2010
- Provision and Requirements for Flood Warning in New South Wales – SES (Nov 2019);
- Bureau of Meteorology (2013). Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0;
- Costin Roe Consulting (2024), Civil Engineering Report (CO13904.03i.rpt)

The following sections of this FMP provide confirmation of roles and responsibilities, statutory requirements, measures to monitor and report on impacts and performance of the measures implemented, contingency planning and protocols for review and improvement.

3.2 Roles and Responsibilities

1. The builder during construction and the warehouse owners/management during operations are the key persons responsible for the implementation of this FMP and have the responsibility action measures if there is potential for a safety or environmental incident to occur.
2. The key roles and responsibilities for the responsible personnel in relation to flood risk management are outlined below in Table 3.1.

Table 3.1 - Roles and responsibilities

Role	Responsibilities
Development Owners and Management	Provide for training in stormwater management for personnel directly involved with the implementation of this plan, as required. Identify and allocate Project resources to implement the requirements of this plan. Oversee the implementation and maintenance of this plan.

Role	Responsibilities
	Ensure all measures are performing adequately throughout the operation of the centre in perpetuity.
Construction Contractor's EM	Ensure maintenance and monitoring of the stormwater management measures are undertaken in accordance with Section 7 .
Construction Contractors	Ensure flood behaviour local to the development is understood. Ensure personnel are educated in the overall FERP .

3.3 General FMP/FERP Requirements

1. This document and associated drawings are subject to further periodic review throughout the operational period to ensure the requirements and measures set out in this FMP/FERP are fit for purpose and allow for any changes which might occur not envisaged during the initial preparation of the FMP/FERP.
2. All flood management and response measures will conform to the standards and information contained in:
 - a) This FMP/FERP;
 - b) Conditions of Consent;
 - c) Hyder (2010) – Flood Study and Stormwater Management – Huntingwood East Precinct, Blacktown (document ref: DN00214
 - d) The latest version of SES flood emergency response plans;
 - e) The latest version of Blacktown City Council's Local Emergency Management Plan.

3.4 Review and Improvement

During operation, effectiveness of the flood detention basin & flood emergency response management measures will be confirmed through regular review of the FERP. It is recommended that this FERP be reviewed every 3 to 5 years once operations commence. Further additional reviews are to be undertaken following major flood event to confirm real life conditions against baseline conditions and make any necessary adjustments.

Adjustments as required will be made based on confirmed site conditions and effectiveness of the implemented measures. These will need to be made in conjunction with a suitably qualified engineer, or other professional, who specialises in stormwater management and flood management.

A copy of the updated plan and changes will be distributed to all relevant stakeholders in accordance with the approved document control procedure. Construction will be undertaken in accordance with the most recent, approved version of this FMP/FERP.

4 FLOOD BEHAVIOUR

4.1 Flood Behaviour Introduction

One riparian corridor drains through the site from south to north, being Blacktown Creek to the east, and an unnamed drainage swale to the west (hereon referred to as Drainage Swale) to the west, both being tributaries of the Parramatta River. An upstream catchment from the opposite side of the M4 Motorway to the south discharges into the creeks through three sets of headwalls and pipes underneath the motorway, two into Blacktown Creek and one into the Drainage Swale. At the downstream site boundary to the north, each creek is discharged through a set of pipes underneath the Great Western Highway. Blacktown Creek discharges into another riparian corridor adjacent to some residential properties, and the Drainage Swale discharges as overland flow through residential properties.

In addition to the flood modelling conducted internally by CRC, we have included the following items as part of our review of information from external sources:

- Hyder (2010) – Flood Study and Stormwater Management – Huntingwood East Precinct, Blacktown (document ref: DN00214)
- Review of Councils Floodplain Management Policy in relation to the development including review of potential impacts of the development on existing flooding, and potential impacts on the development from flooding.

Extracts of flood behaviour within the site creeks were obtained from a flood study prepared by Hyder in 2010. The study involved a hydrological and hydraulic assessment of the catchment at a local level.

We provide excerpts associated with the 1% AEP storm event from the pre-development Flood Study in **Figure 4.1** and **Figure 4.2** to provide a localised overview of the flood conditions over the development site. **Figure 4.1** is noted to be an excerpt of the 1% AEP pre-development flood depths and levels, and **Figure 4.2** is the 1% AEP pre-development flood hazard.



Figure 4.1. Hyder Flood Study – 1% AEP Flood Extent – Pre-development



Figure 4.2. Hyder Flood Study – 1% AEP Flood Hazard Map – Pre-development

Hyder's flood assessment confirms that the site is a major overland flow path in the 1% AEP flood event, conveying water from upstream catchments to the south, which then flow north towards Parramatta River. The contributing catchments total approximately 55Ha and are split across the two creeks. With reference to **Figure 4.1**, flood water enters through existing stormwater infrastructure constructed underneath the M4 Motorway and converges in the creeks on site. From the flood study, flood levels within the site range from 70m to 75m AHD, reaching depths of up to 4.3m towards the downstream end.

Given the above, the site is shown to be impacted by flooding during the 1% AEP and in more intense storm events. Additional modelling has been conducted to determine the effect of the proposed development on the existing flood behaviour.

4.2 Flood Extent

The post-development flood extent (Shown in **Figures 4.3 & 4.4**) and level for the 1% AEP storm event, presented at the peak flow depth, can be seen to be around RL69.33m AHD at the northern boundary of Blacktown creek culvert and approximately RL68.82m AHD at the northern boundary of the western drainage swale.

Reference to **Figures 4.3 & Figure 4.4** below should be made for the post-development flood levels and depths and velocity for the 1% AEP event.

An assessment has been undertaken for the effect of climate change on the development. The assessment takes into consideration potential effect from increased rainfall intensity and sea level rise.

An assessment of the 0.2% AEP and 0.5% AEP was included as a proxy for the effect of climate change and is considered a conservative assessment for a 10% increase in flow to the 1% AEP event.

Reference to **Figures 4.5** below should be made for the post-development flood levels and depths for the 0.2% AEP event.

The post-development flood extent and level for the 0.2% AEP storm event, presented at the peak flow, can be seen to be around RL69.31m AHD at the northern boundary of the Blacktown creek culvert and approximately RL68.85m AHD at the northern boundary of the western drainage swale.

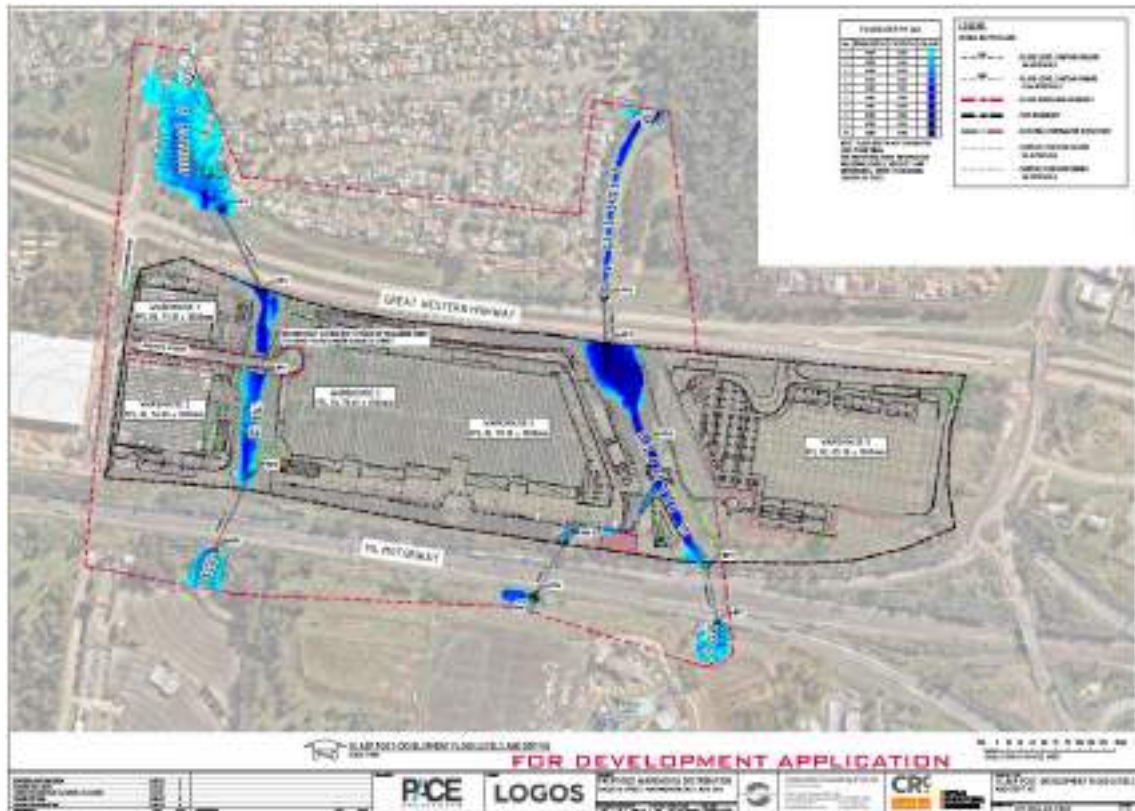


Figure 4.3: 1% AEP Post-developed Level and Depth Output

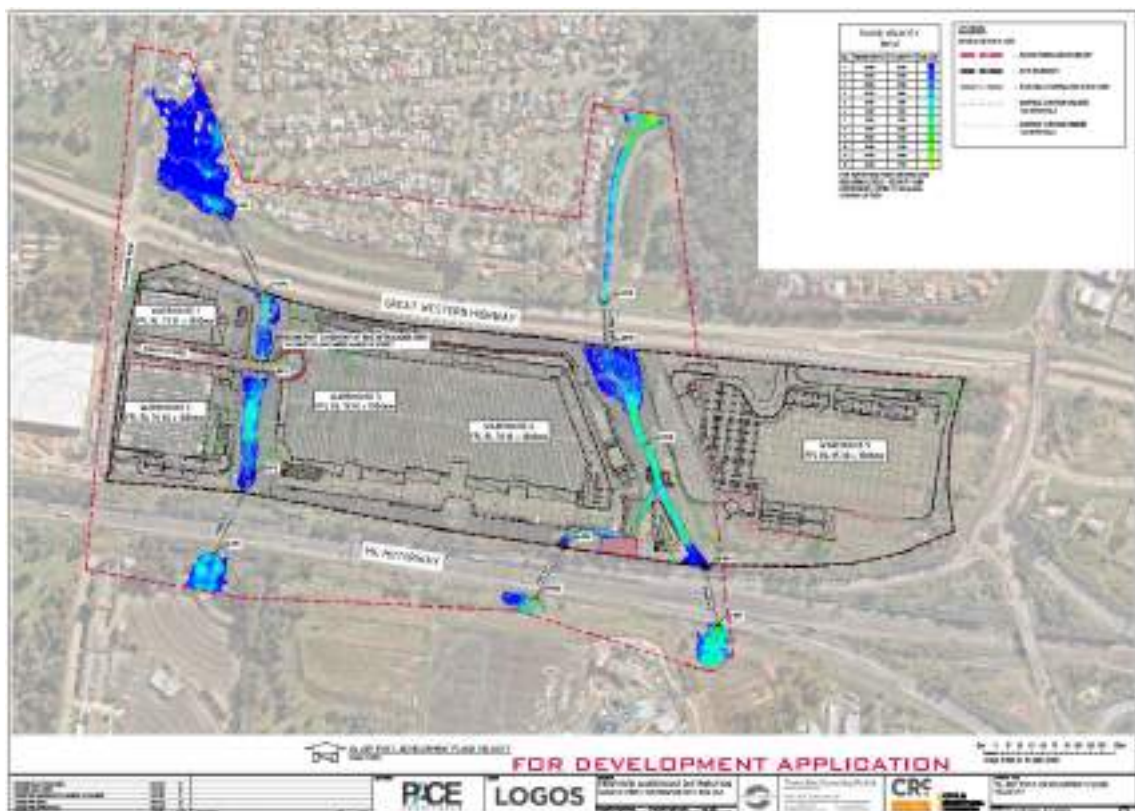


Figure 4.4: 1% AEP Post-developed Velocity

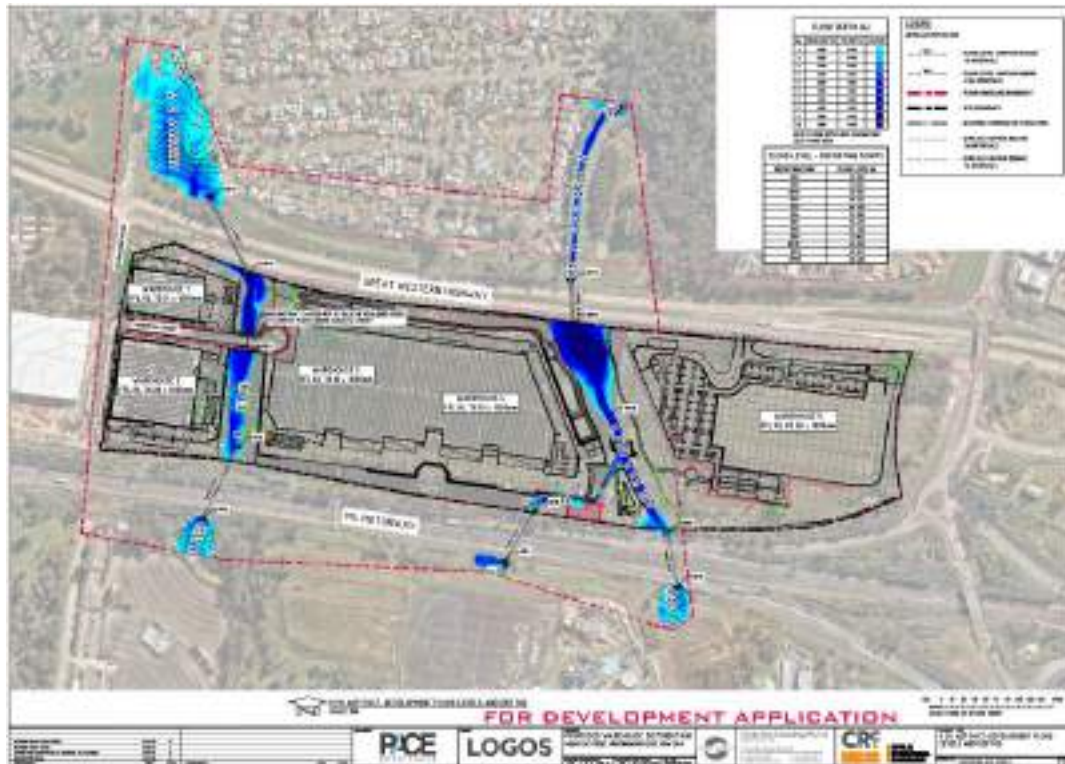


Figure 4.5: 0.2% AEP Post-developed Level and Depth Output

5 HAZARD CATEGORIES & MAPPING

5.1 Introduction

Flood hazard categories are broken down into high and low hazard (H1 to H6 categories depending on depth and velocity, and their interaction with each other as set out in Figures 5.1 and 5.2) for each hydraulic category. High hazard areas are defined as those where there is a possible danger to personal safety and the potential for significant structural damage. Able-bodied adults would have difficulty in wading to safety. With low hazard areas, should it be necessary, a truck could evacuate people and their possessions, and able-bodied adults would have little difficulty in wading to safety.

Flood hazard criteria and mapping has been completed for the 1% AEP and PMF post development conditions as per criteria set out in the Australian Rainfall and Runoff (2019), A Guide to Flood Estimation – Book 6 – Flood Hydraulics and Figure 6.7.9 as included as **Figure 5.1** below.

Refer **Section 5.2** for hazard mapping. Reference should be made to Section 6 for a detailed description of flood safety and -evacuation.

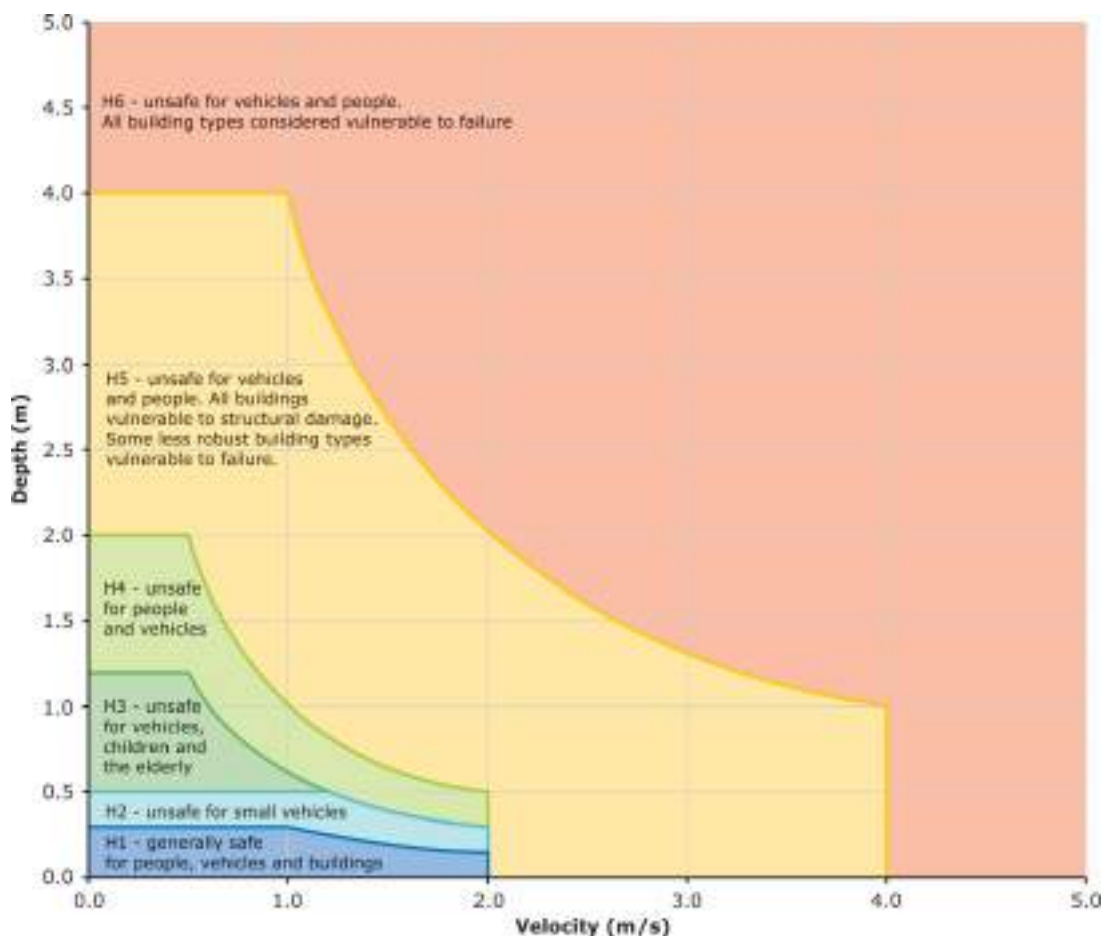


Figure 5.1 - Provisional Flood Hazard Chart (AR&R 2019)

Table 6.7.3. Combined Hazard Curves - Vulnerability Thresholds (Smith et al., 2014)

Hazard Vulnerability Classification	Description
H1	Generally safe for vehicles, people and buildings.
H2	Unsafe for small vehicles.
H3	Unsafe for vehicles, children and the elderly.
H4	Unsafe for vehicles and people.
H5	Unsafe for vehicles and people. All buildings vulnerable to structural damage. Some less robust buildings subject to failure.
H6	Unsafe for vehicles and people. All building types considered vulnerable to failure.

Table 6.7.4. Combined Hazard Curves - Vulnerability Threshold Classification Limits (Smith et al., 2014)

Hazard Vulnerability Classification	Classification Limit (D and V in combination)	Limiting Still Water Depth (D)	Limiting Velocity (V)
H1	$D^*V \leq 0.3$	0.3	2.0
H2	$D^*V \leq 0.6$	0.5	2.8
H3	$D^*V \leq 0.6$	1.2	2.0
H4	$D^*V \leq 1.0$	2.8	2.0
H5	$D^*V \leq 4.0$	4.0	4.0
H6	$D^*V \leq 4.0$	-	-

Figure 5.2 - Adopted Hazard Criteria (AR&R 2019)

5.2 Hazard Mapping

Flood hazard criteria and mapping (for the 1% AEP storm event) has been included in **Figure 5.3** below. The operational portion of the site (Hardstand, carpark, Warehouse FFL) are above the 1% AEP hazard zone, suspended above the overland flow area, with the riparian corridor and the drainage swale noted to have a hazard categorisation ranging between H3-H5.

Figure 5.4 below show the majority of the operational portion of the site are above the PMF hazard zone, with Warehouse One's car parking area affected by H1 hazard levels, with a small portion affected by levels up to H3. Similarly, Augusta Street's crossing over the drainage swale is mostly affected by H2 levels, with a small portion of H3 levels. The riparian zone and the drainage swale exhibit hazard categorisations ranging between H4-H6.

Reference should be made to **Section 6** for a detailed description of flood safety and evacuation.

The assessment and hazard categorisation has been completed based on criteria set out in the *Australian Rainfall and Runoff (2019), A Guide to Flood Estimation – Book 6 – Flood Hydraulics* and **Figure 6.7.9**.

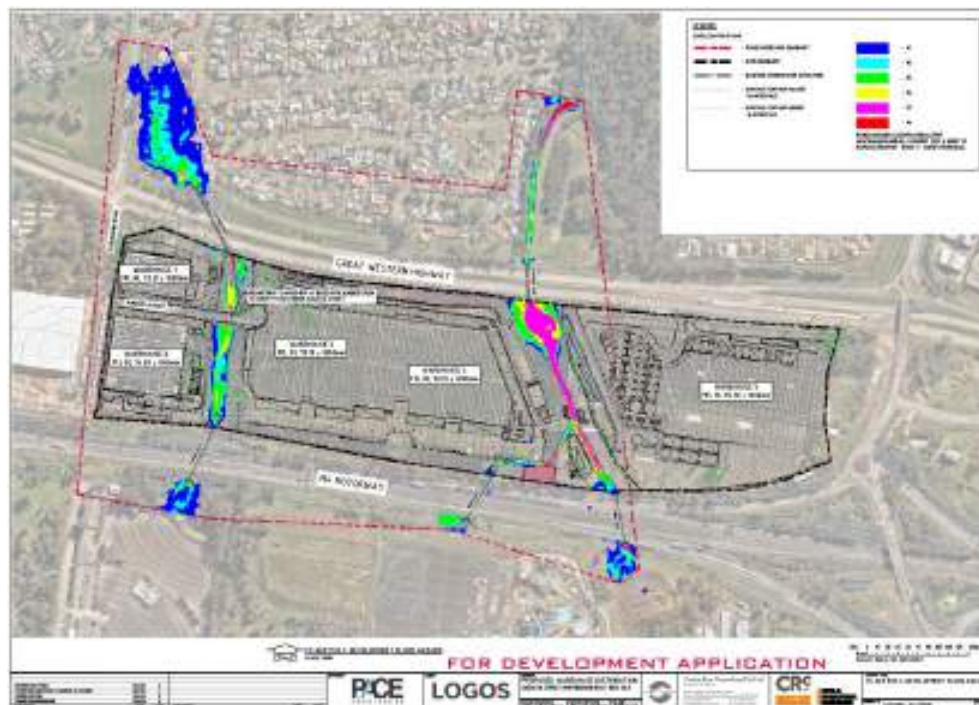


Figure 5.3 - Post-development Flood Hazard Map (1% AEP Storm Event)

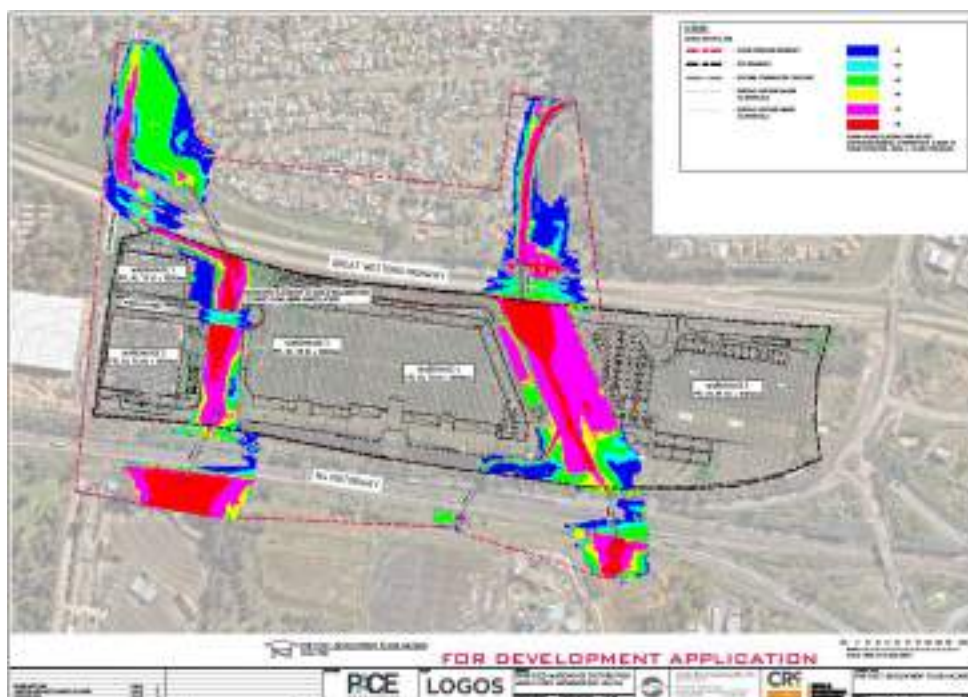


Figure 5.4 - Post-development Flood Hazard Map (PMF Storm Event)

5.3 Flood Damage Assessment

Damage caused by floods is generally categorised as either tangible or intangible. Tangible damages are financial in nature and can be readily measured in monetary terms. They include direct damages such as damage or loss caused by floodwaters

wetting goods and property, and indirect damages such as lost wages incurred during cleanup periods after the flood event. Intangible damage includes emotional stress and even mental and physical illness caused by the flood. It is difficult, if not impossible to quantify intangible damages in financial terms.

From a flood planning perspective, it is important to consider the following direct damage categories:

- Contents Damage – refers to damage to the contents of buildings, including carpets and furniture etc.;
- Structural Damage – refers to damage to the structural fabric of buildings, such as foundations, walls floors, windows, and built-in fittings; and
- External Damage – includes damage to all items external to buildings, including cars, landscaping etc.

The NSW Flood Damage Assessment Tool available on the NSW SES Flood Data Portal ([NSW Flood damage assessment tool - Datasets - NSW Flood Data Portal](#)) can be utilised to calculate damages associated with flooding and facilitate cost benefit assessments of potential floodplain risk management measures on the development site.

The tool should be used in conjunction with the Flood Risk Management - Management Measures guideline (MM01) associated with the Flood Risk Management Manual (DPE, 2023).

Additionally, to the completion of the Flood Damage Assessment tool prior to operation of the facility, routine and triggered (by heavy rainfalls) inspections need to be completed and recorded during construction and during operation of the facility, as discussed below.

Routine- and Triggered Inspections

Routine Inspections

It would be recommended that routine inspections of the infrastructure and structures located within the dedicated overland flow area is carried out after significant storm events. Compiling and implementing a comprehensive *Flood Damage Inspection process and procedure* is essential to safeguard the longevity of structures, ensure the safety of occupants, and protect the individuals performing the flood damage assessment.

These routine inspections are to assess the need for maintenance and are primarily concerned with checking the condition of the suspended structure and the functionality of the stormwater drainage and treatment facilities; items such as columns, footings, retaining walls, drains, drainage pits, box culverts, culverts and headwalls. Maintenance of these items is vitally important for the integrity of the suspended structure and the ongoing drainage and treatment of stormwater.

Should the inspection reveal that maintenance of any item is required, this is to be reported to the building management for action.

Inspection Frequency

Routine Inspections for Maintenance shall be carried out over the life of the development.

The inspections shall occur on a monthly frequency during the construction period and shall continue on a yearly basis in perpetuity.

In addition to the normal inspection frequency nominated inspections should also be carried out following heavy rain events (**triggered inspections**). Event heavy rain inspections should be carried out as soon as practicable following an intense period of rainfall (i.e. greater than 100mm over 24 hours, as measured at Seven Hills (Radio FM 103.2) 067110). A process to establish when periods of high rainfall occur should be put in place with Building Management.

Records

Records detailing each of the routine inspections for maintenance should be completed during the inspection, and describe in detail any required maintenance. The inspection records are to be provided to Building Management for action and then filed appropriately. Records of any maintenance carried out as a result of the inspection should be completed immediately after the work has been finalised, and filed appropriately.

Personnel

Routine inspections for maintenance are required to establish the need for basic maintenance, as described above. On this basis, such inspections do not require professional engineering knowledge and may be carried out by any responsible person, including property management staff or maintenance staff.

Alternatively, professional engineering staff may be employed to complete the routine inspections for maintenance concurrently with the engineering inspections for maintenance.

Inspection Safety

General

As described earlier in this document, regular inspections and maintenance of structures and drains are essential for their ongoing stability. However, carrying out inspections and maintenance activities will place those personnel involved with the inspections and maintenance at varying levels of risk. Therefore, to reduce the risk, certain minimum procedures and activities must be carried out before, during and after the inspections.

Inspections/ Maintenance

In order to reduce the risk, any inspections or maintenance activities should be carried out under the following protocols:

- Inspections/Maintenance teams must comprise a minimum of two, preferably three people, in order to prevent inspection personnel working alone;
- Inspections/Maintenance must be carried out within 48 hours of a rain event, preferably within 24 hours;
- Personnel completing inspections/maintenance must be able to communicate and be contactable, e.g. by carrying mobile phones or UHF radios; and
- For entry to confined spaces, the Contractor should establish if relevant training is required to enter these spaces, as well as provision of appropriate equipment to carry out the inspections.

Prior to Inspection/ Maintenance

It is the responsibility of the Building Management to appoint the appropriate personnel to carry out the inspections and maintenance, and to nominate

appropriate times for the inspections to occur, according to the frequencies recommended above.

Prior to any inspection/maintenance commencing, the Building Management or representative shall:

1. Review and sign off an Inspection/Maintenance Safety Plan provided by the personnel completing the inspection or carrying out the maintenance. Sufficient time should be allowed to review the plan, request changes/alterations, and approve the updated document.

The Inspection/Maintenance Safety Plan must include:

- a. A list of personnel and backup personnel completing the inspections/maintenance, along with their qualifications and experience. The qualifications should include a list of tertiary education (if applicable), "green card" status or equivalent (e.g. Occupational Health and Safety Induction Training for Construction Work – General Course), and any required licences such as drivers licence/Bobcat operators licence;
 - b. A list of the items and areas to be inspected/maintained
 - c. The procedures to be undertaken during the inspections/maintenance;
 - d. The methodology proposed to complete the inspections/maintenance;
 - e. A Job Safety Analysis (JSA)/Health and Safety Plan (HASP), or equivalent, that documents the following:
 - i. Each Inspection/Maintenance Activity and associated Hazard.
 - ii. An initial risk assessment;
 - iii. Control measures to be implemented to reduce unacceptable risks; and
 - iv. A second risk assessment that re-assesses the risk considering the control measures suggested for implementation in Point "iii" above.
 - f. Details of evacuation procedures and muster points in the event of an emergency;
 - g. A list of safety equipment to be taken, including a radio, first aid kit; and
 - h. Where appropriate ablutions and wash facilities are located.
2. Ensure the inspection and maintenance personnel entering the site have filled in a dedicated Sign In/Sign Out register. This register can be located at the Building Management office. Location to be confirmed to all parties involved. The register should also record which personnel have custody of any keys that provide access through locked gates/barricades. Any keys should be signed back in at the end of each days work; and
 3. Be present during a Tool Box talk that summarises the JSA/HASP, highlighting the main hazards and risks. If Building Management is aware of any hazards and risks not mentioned in the JSA/HASP, they are to be raised during the Tool Box Talk and the JSA/HASP amended accordingly.

Following the completion of these activities, the Inspections and or Maintenance may commence.

During Inspections/ Maintenance

During the inspection and maintenance activities, it is the responsibility of those personnel carrying out the works to ensure that the requirements of the Inspection/Maintenance Safety Plan are adhered to. Safety whilst completing the inspections/maintenance is as important as the functionality of the drains themselves.

Whilst working within the drain pits, overland flow area or through intermediate access points, the inspection and maintenance work teams shall:

- Complete visual inspections of the drain and pits for signs of shifting and or damage;
- Check for accumulations of scale or sedimentation within the pipes/drains;
- Be vigilant with regard to loose items that could fall from the suspended slabs above;
- Be vigilant with regard to rock falls from the batters;
- Work in minimum groups of two people, preferably three;
- Perform inspections during period of forecast dry weather;
- Ensure that sufficient PPE is worn and utilised. As a minimum (subject to the maintenance activity), the following PPE is required:
 - High Visibility Safety Vest;
 - Steel Capped Boots;
 - Helmet;
 - Safety glasses;
 - Mobile Phone/UHF Radio (or other means of telecommunication);
 - First Aid Kit; and
 - Long pants and long sleeve shirts.

Subsequent to Inspection

At the completion of each days work, all members of the inspection/maintenance parties must complete the Sign In/Sign Out register to note that they have left the site. Any keys issued to provide access through locked gates/barricades must be returned and signed for.

The completed Inspection/Maintenance Records must be handed over to the Building Management for actioning. If a report needs to be furnished, it must be finalised and submitted within 2 weeks of inspection/maintenance works being completed.

6 FLOOD SAFETY & EVACUATION

6.1 Introduction

This section of the report presents the relevant information in relation to egress and evacuation during the approach of a significant flood event. The information in this report can be used as a framework for the overall precinct and for more detailed emergency response plans for individual tenants.

This framework has been completed with consideration to the State Emergency and Rescue Management Act 1989 (NSW), the State Emergency Service Act 1989 (NSW), and the *SES Blacktown City Flood Emergency Sub Plan*.

Safe evacuation from the development site is the recommended procedure for all storm events up to the 0.2% AEP storm event. Provisions should be made during operations to facilitate sheltering in place for tenants of Warehouse 3 & 4 in case of a PMF event that causes inundation of site access (H2 hazard) or if individuals on-site feel it is unsafe to evacuate. However, early evacuation of the facility is advised when a more severe storm event is anticipated.

6.2 Flood Extent

The flood behaviour, including flood levels and extents (refer **Figure 4.3, Figure 4.4 and Figure 4.5**), during the 1% and 0.2% AEP storm events are included in **Section 4** of this plan.

As discussed in earlier sections of the report, the operational parts of the site are designed to be suspended above the overland flow path from the upstream catchment and drainage system.

Further discussion on effective warning measures and triggers are included in the following sections.

6.3 Preparedness

Education, awareness, and preparedness program:

The FRM plan provide the opportunity to develop engagement and education materials to support flood awareness activities. These activities should also be part of any major FRM measure that alters flood behaviour, flood warning or how the community needs to respond to the flood threat. Management (construction & operational stages) need to be responsible for ongoing awareness and education including informing the community on how to prepare for, and how and when to act in response a flood threat.

Education should seek to provide information to raise awareness of flooding so as to enable individuals to understand how to manage themselves and their property in response to flood warnings.

It is recommended that flooding emergency plans is regularly exercised. Should the exercise drills highlight particulars that need to be updated in the flood emergency plan, it is recommended that the plan is updated and circulated to all parties affected.

Flood Signage:

Appropriate flood signage should be provided on the development site as continuous awareness of designated flood emergency access and egress routes and locations. The following flood signage is proposed on the development site:

- Signage to accentuate the designated **emergency access** locations into the development site for both personnel/visitors and emergency services during an emergency, noting the preferred safe access and egress from the site is via the
 - Noting that the designated **operational exit** from the development site, appropriate flood signs should clearly permit the **entry of emergency services vehicles during an emergency**.
- Signage at the exit from the development site proposing evacuation in a northerly direction along Greater Western Highway (turning left when exiting the development site)
- Signage should be installed at the site's **operational entrance** to indicate that access is prohibited during emergency situations, such as larger storm events. During emergencies, the gates at the main entrance should be closed to all vehicles, and signage should be provided to direct emergency vehicles to the **emergency access** located to the west of the development site.
- Signage indicating the proposed flood emergency evacuation routes from all areas of the proposed warehousing to the evacuation assembly point should be provided, including signage indicating the evacuation assembly point
- Signage should be provided within the flood conveyance zone indicating this area to be a Flood Zone and should be off limits to personnel.
- Signage should be provided at several key locations as appropriate summarising the site's proposed evacuation procedure.
- It should be noted that signage should not be limited to the above signage only. If during the review of the FERP, additional signage requirements is discussed, these signs should be created and installed as appropriate.

Development of Warning Systems

Each tenant should have a tenant specific plan which sets out flood warden, evacuation zones and responsible persons. This flood plan should:

- Provide an overview / summary of the flood risk on site;
- Explain and demonstrate emergency evacuation procedures;

This flood awareness program should be incorporated into the induction process for new and existing staff members of tenants on the development site and is to be repeated annually as part of any "refresher" training. The program is to be reviewed when new tenants move into the building. Management should consider installing signage in around the site which outlines the flood evacuation procedure.

Visitors are to be briefed on the basics of the flood evacuation procedure upon arrival to the site. This training may include identification of the Flood Warden on site during the duration of their stay and showing visitors the designated refuge areas and evacuation pathways.

As noted, the advice in this report can be used as a framework for these site-specific plans, in conjunction with Blacktown City Council and SES sub plans as required.

During construction, the warehouse site should have a responsible person (EM or site manager) who understands the flood behaviour of this area, is familiar with this report and flood management responses set out in the FERP.

The Bureau of Meteorology (BoM) will issue flood alerts as part of their responsibility for the issue of warnings of weather conditions likely to give rise to Floods and for the provision of forecasting and warning services for Extreme Weather and Hazard Impact Events. Severe Weather Warnings, Severe Thunderstorm Warnings & Flood warnings are issued by the Bureau of Meteorology to alert communities to the threat of severe weather at (<http://www.bom.gov.au/nsw/warnings/> & <http://www.bom.gov.au/nsw/flood/sydney.shtml>).

Development Owners and Management should appoint personnel (person or committee) involved with the implementation of this plan. As part of an early warning system, the appointed person or committee should be aware of the weekly weather forecast to identify heavy forecasted rainfall to prepare according. It is recommended that, if possible, the committee/Flood warden, bookmark the BoM warning pages for quick access.

The appointed person or committee should, during periods of heavy or forecast heavy rainfall, diligently observe the Severe Weather Warnings, rainfalls and road closures from the BoM.

As described in **Section 6.5** below, the BoM warning system is based on predicted rainfall and gauges in the Sydney region. This includes identification of potential flooding areas, estimated impacts of flooding at different heights and action time.

The BOM warning system will provide good initial guidance for triggering of flood measures. A suitable response/trigger methodology has been outlined in **Section 6.5** which can be utilised to inform users of the site to prepare their own site-specific flood management response plans.

Flood warning and emergency response for the development site will be based on the rainfall within the adjoining catchments.

Real-time data (updated at 15-minute intervals) for these sites can be accessed through the BOM website via the following hyperlink (refer **Figure 6.1** for an indication of the relevant site-specific station):

<http://www.bom.gov.au/nsw/flood/sydney.shtml>

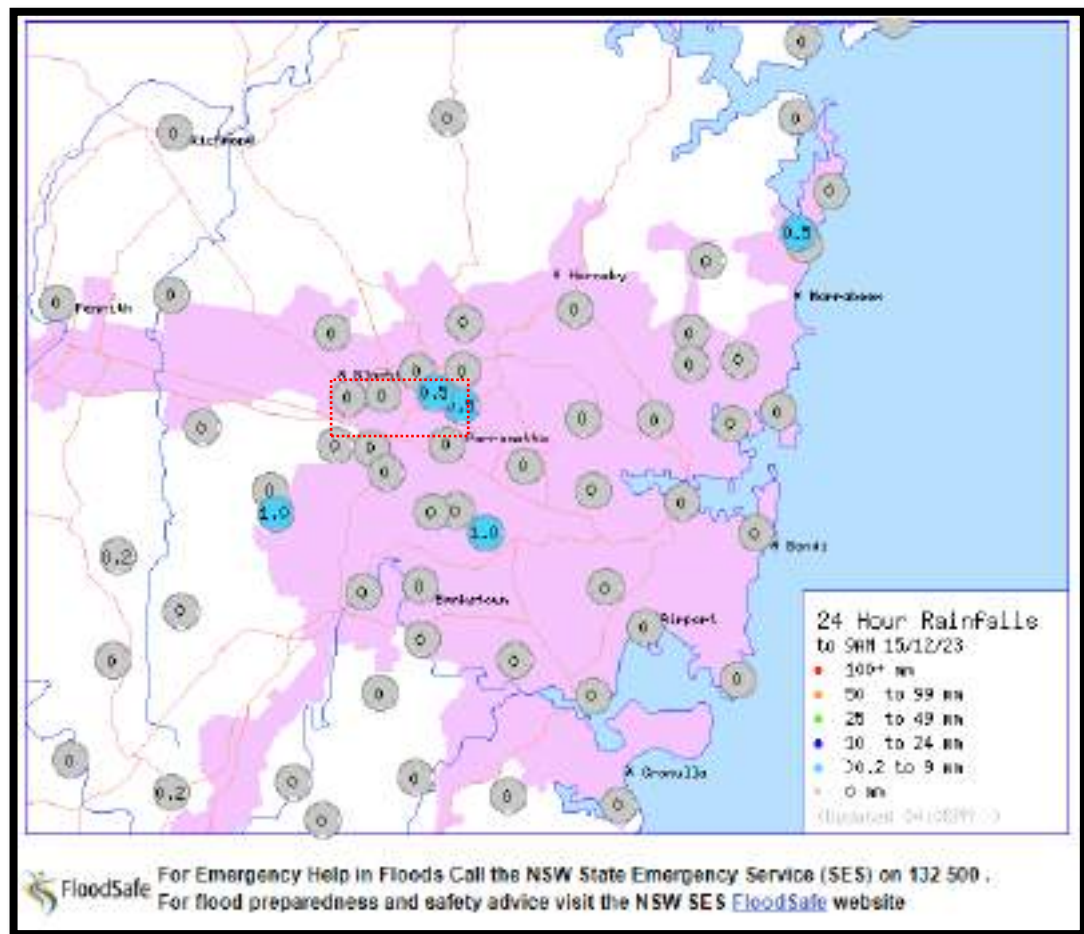


Figure 6.1 – Site Specific Station

6.4 Emergency Response Planning

Flood Emergency Management planning refers to the preparation of a formal community-based plan of action to deal with the threat, onset and aftermath of flooding. It involves planning for an event equal to, or greater than the event used to derive the FPL.

The plan of action should include an on-site response plan that addresses what measures should be undertaken once the threat of a flood is determined to be imminent. A flood evacuation strategy should also be included so that all persons within the precinct are familiar with the processes required if a flood occurs. Refer to **Section 6.3** proposing appropriate signage to be provided to assist personnel during the evacuation process.

In summary, the review shows that safe access/egress (Hazard Categorisation <H1) is available to and from the **western** access for Warehouse 1 to 4 and **north-western** access for warehouse 5 of the site in all storm events up to the 0.2% AEP storm event as shown in **Figure 6.2** below.

Safe evacuation routes to the west and east of the site's western and northern access are available and occupants would be able to move to flood free areas via Greater

Western Highway at the direction of the SES or other appropriate authority. The possible evacuation route is shown in **Figure 6.3** below.

Provisions should be made during operations to facilitate sheltering in place for tenants of Warehouse 3 & 4 in case of a PMF event that causes inundation of site access (H2 hazard) or if individuals on-site feel it is unsafe to evacuate. However, early evacuation of the facility is advised when a more severe storm event is anticipated.

Safe refuge is available on the site in hardstand, warehouse and offices. The development site is free of the PMF, it is only the Augusta Street access to Warehouse 3 & 4 that is inundated (H2 hazard). However, early evacuation of the facility is advised when a more severe storm event is anticipated.



Figure 6.2 - Safe access and egress to and from the western access point for warehouse 1 to 4 and the northern access point for warehouse 5 (up to the 0.2% AEP flood event)

6.5 Preparation Steps

It is the responsibility of Management to understand the risks and dangers of flooding relating to the development site, and the need to restrict access to the flood management zone (overland flow path) (subject to flooding) in such an event.

It is recommended that key persons within Management are registered to be able to receive flood warning messages via SMS from the NSW SES. This should include a specific Flood Warden, as well as upper management personnel.

Lastly, the evacuation framework contained in this report must be understood and adapted, as necessary. It is recommended that a copy or copies of this report are kept at several locations on site such as the construction site shed, maintenance

manager, and office administrator. A thorough understanding of *Councils Local Flood Plan* should also be made.

The plan of action includes an on-site response plan that addresses what measures should be undertaken once the threat of a flood is determined to be imminent and the occupants should be inducted so that all persons within the precinct are familiar with the processes and the flood evacuation strategy required if a flood occurs.

It is noted that significant lead warning time would be required to enable effective flood response plans to be initiated for this site to address safety of persons. Lead warning would be necessary for removal of vehicles from the basin areas or understanding when restriction of vehicles from entering the basin area should be made. Refer to **Section 7.1** below for early warning systems.

7 FLOOD RESPONSE

7.1 Flood Response Introduction

The following sub-sections of the report provide information on potential flood triggers that could be utilised by site management (during construction and operation) to be able to prepare their own flood response plans.

The site management may install site flood depth gauges along the Blacktown Creek riparian zone and the western drainage swale floodwaters enter the site. Refer to Figure 7.1 for possible Flood Depth Gauge locations.

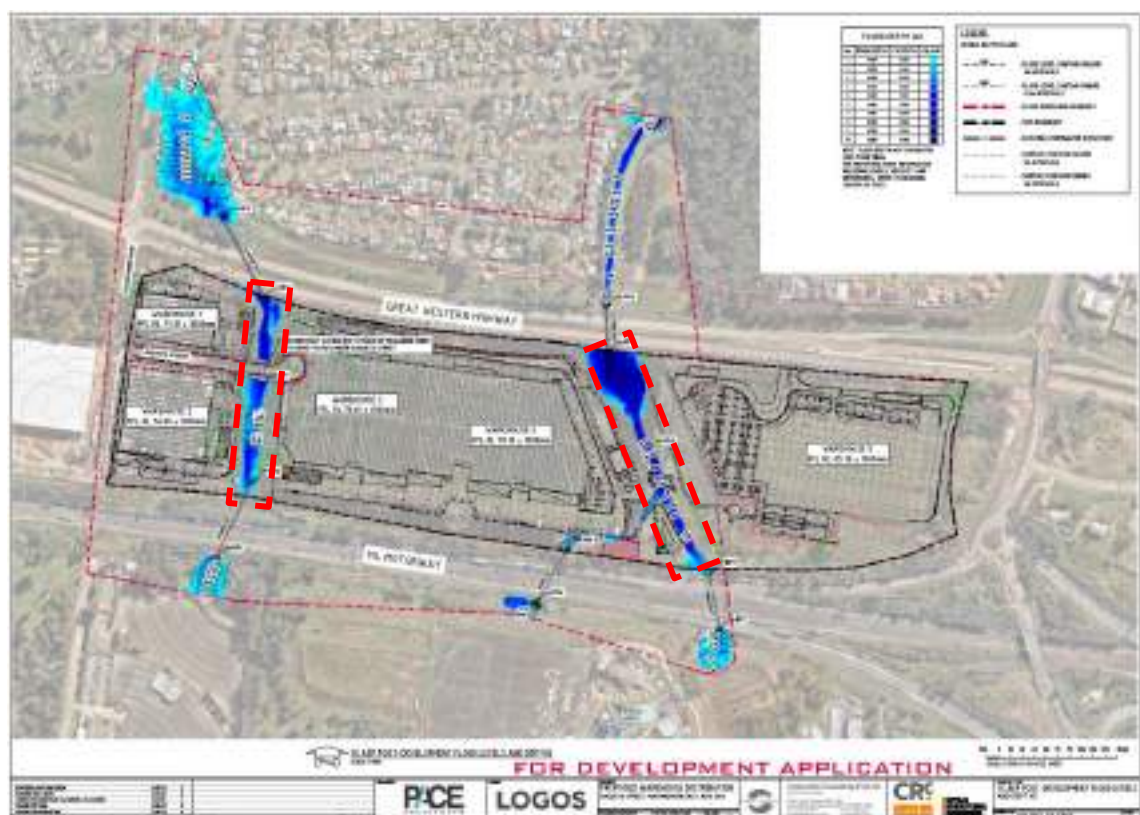


Figure 7.1 Flood Depth Gauge Locations

7.2 Response Triggers & Site-Specific Measures

7.2.1 Trigger 1 - A flood alert/watch/advice is issued by the BOM.

The BOM alert will be issued if flood producing rain is predicted. This provides an early warning that flooding may occur, however is not confirmation that flooding will occur. If this alert is issued then the Flood Warden should be on alert for further BOM, SES or site-specific Triggers.

7.2.2 Trigger 2 – General flood alert issued by the BOM.

A generalised flood warning would be issued when flooding is expected to occur in a given area. These would generally be provided by the BOM with three hours warning time is expected from issue of warning to peak flood level as per the “*Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0*” (Bureau of Meteorology, 2013).

Maintenance workers, or other persons, who might need to access the flood storage area should be notified prior to entering the potentially flood affected areas.

It is noted that Trigger 3 may occur prior to Trigger 2 and the Flood Warden is required to consider this eventuality.

7.2.3 Trigger 3 - Site flood level gauge achieves flood depth of 0.1m – 0.5m.

Flood Warden at this point should put Warehouse occupants on alert to evacuate the site from the northern entrance and close the southern access from entry or exit.

Flood warden to contact SES for additional updates, if required.

7.2.4 Trigger 4 - Site flood level gauge achieves flood depth greater than 0.5m.

Flood warden should advise the immediate evacuation of the development site to the north-east and to ensure the southern exit remain closed for both cars and personnel. Safe evacuation to the north-east only, no evacuation should be made in a southern direction.

Flood warden should advise occupants or remaining occupants (those opting to seek refuge on site) to move to higher ground (upper levels), for example within the Warehouse or Office.

End of Response Operations

Once the flood levels recede below the trigger level and the danger posed by flooding has passed, the NSW SES Blacktown City Local Incident Controller will issue an “all clear” message which will be conveyed in the same format as the warning message, via SMS. The site occupiers can then leave the industrial precinct if on site refuge was undertaken or return to the precinct if evacuated.

8 CONCLUSION

Costin Roe Consulting Pty Ltd has been commissioned to develop this **FMP/FERP** for the industrial development at Augusta Street, Blacktown, NSW.

The report provides a summary of flood behaviour of local flooding which affects the site, and the different conditions which cause flooding on the site.

Flood preparedness and response techniques have been clarified, including warning triggers and distribution of the flood response procedures. During flooding events, the southern access to and from the site should be closed all personnel and vehicles and evacuation should take place to the north and north-east of the site while conditions allow.

The report provides requirements for the monitoring and maintenance of the existing flood detention basin during construction and operation to maintain the current design standard.

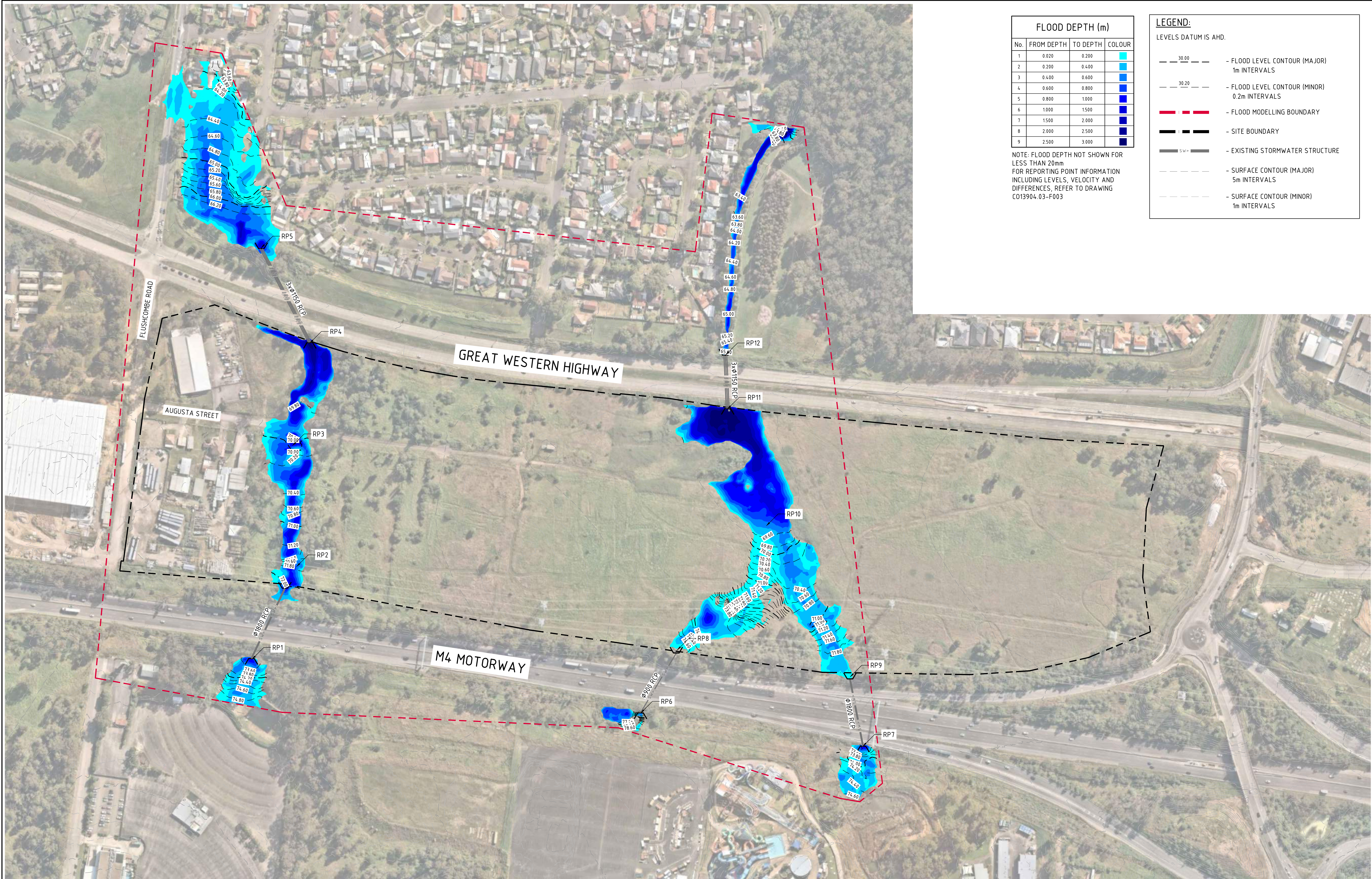
Further the report provides the framework for the preparation of the flood egress plans as required throughout the operational phase of the development.

9 REFERENCES

- Flood Risk Management Manual (2023)
- Hyder Consulting Flood Study and Stormwater Management report referenced DN00214 and dated 18 January 2010
- Blacktown City Flood Emergency Sub Plan (2023)
- SES (Nov 2019). Provision of and Requirements for Flood Warning
- Bureau of Meteorology (2013). Service Level Specification for Flood Forecasting and Warning Services for New South Wales – Version 2.0
- NSW Government (2023). Flood Impact and Risk Assessment. Flood Risk management guideline LU01;
- Provision and Requirements for Flood Warning in New South Wales – SES (Nov 2019);
- Costin Roe Consulting (2024), Civil Engineering Report (Co13904.03-03i.rpt)

10 APPENDICES

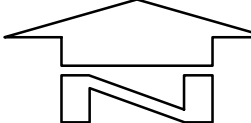
APPENDIX A
COSTIN ROE CONSULTING FLOOD MODELLING DRAWINGS



FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	Light Blue
2	0.200	0.400	Medium Blue
3	0.400	0.600	Dark Blue
4	0.600	0.800	Very Dark Blue
5	0.800	1.000	Dark Blue
6	1.000	1.500	Dark Blue
7	1.500	2.000	Dark Blue
8	2.000	2.500	Dark Blue
9	2.500	3.000	Dark Blue

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm
FOR REPORTING POINT INFORMATION INCLUDING LEVELS, VELOCITY AND DIFFERENCES, REFER TO DRAWING C013904.03-F003

- LEGEND:**
LEVELS DATUM IS AHD.
- 30.00 — FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
 - 30.20 — FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
 - FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - SW — EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS



1% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA	30.06.23	B		
ISSUED FOR INFORMATION	23.06.23	A		
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE

ARCHITECT
PACE
ARCHITECTS

CLIENT
LOGOS

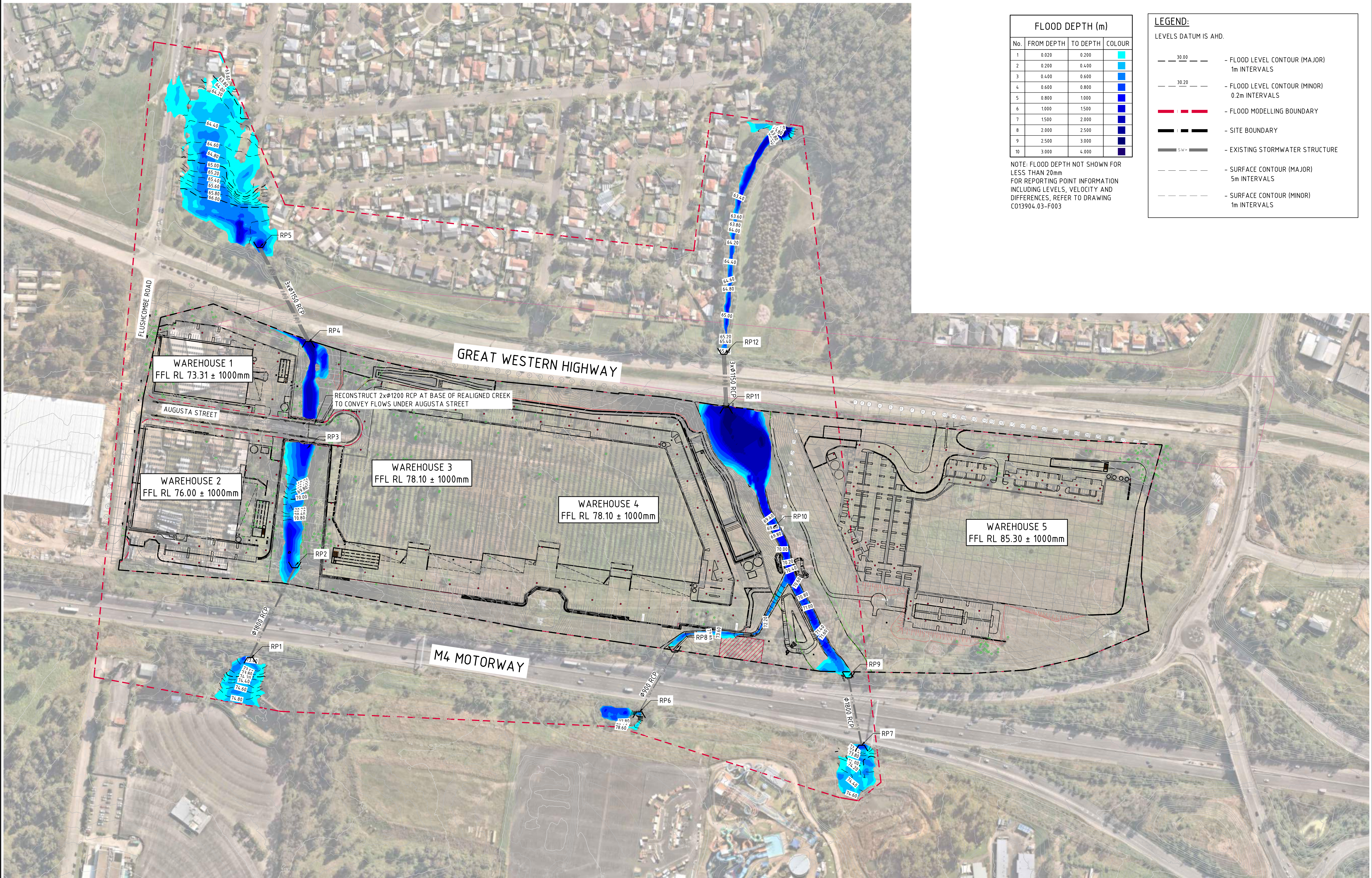
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DESIGNED	LDV
DRAWN	JB
DATE	JUNE '22
CHECKED	MW
SIZE	B1
SCALE	AS SHOWN
CAD REF:	C013904.03-F001



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CRC
COSTIN ROE CONSULTING
CIVIL & STRUCTURAL ENGINEERS

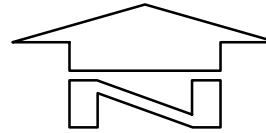
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DRAWING No	C013904.03-F001
ISSUE	B



FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	Light Blue
2	0.200	0.400	Blue
3	0.400	0.600	Dark Blue
4	0.600	0.800	Very Dark Blue
5	0.800	1.000	Dark Blue
6	1.000	1.500	Dark Blue
7	1.500	2.000	Dark Blue
8	2.000	2.500	Dark Blue
9	2.500	3.000	Dark Blue
10	3.000	4.000	Dark Blue

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm
FOR REPORTING POINT INFORMATION INCLUDING LEVELS, VELOCITY AND DIFFERENCES, REFER TO DRAWING C013904.03-F003

- LEGEND:**
LEVELS DATUM IS AHD.
- 30.00 — FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
 - 30.20 — FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
 - FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS



1% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	E	
REVISED WEST CREEK	01.03.23	D	
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	C	
ISSUED FOR SSDA	30.06.23	B	
ISSUED FOR INFORMATION	23.06.23	A	
AMENDMENTS	DATE	ISSUE	AMENDMENTS



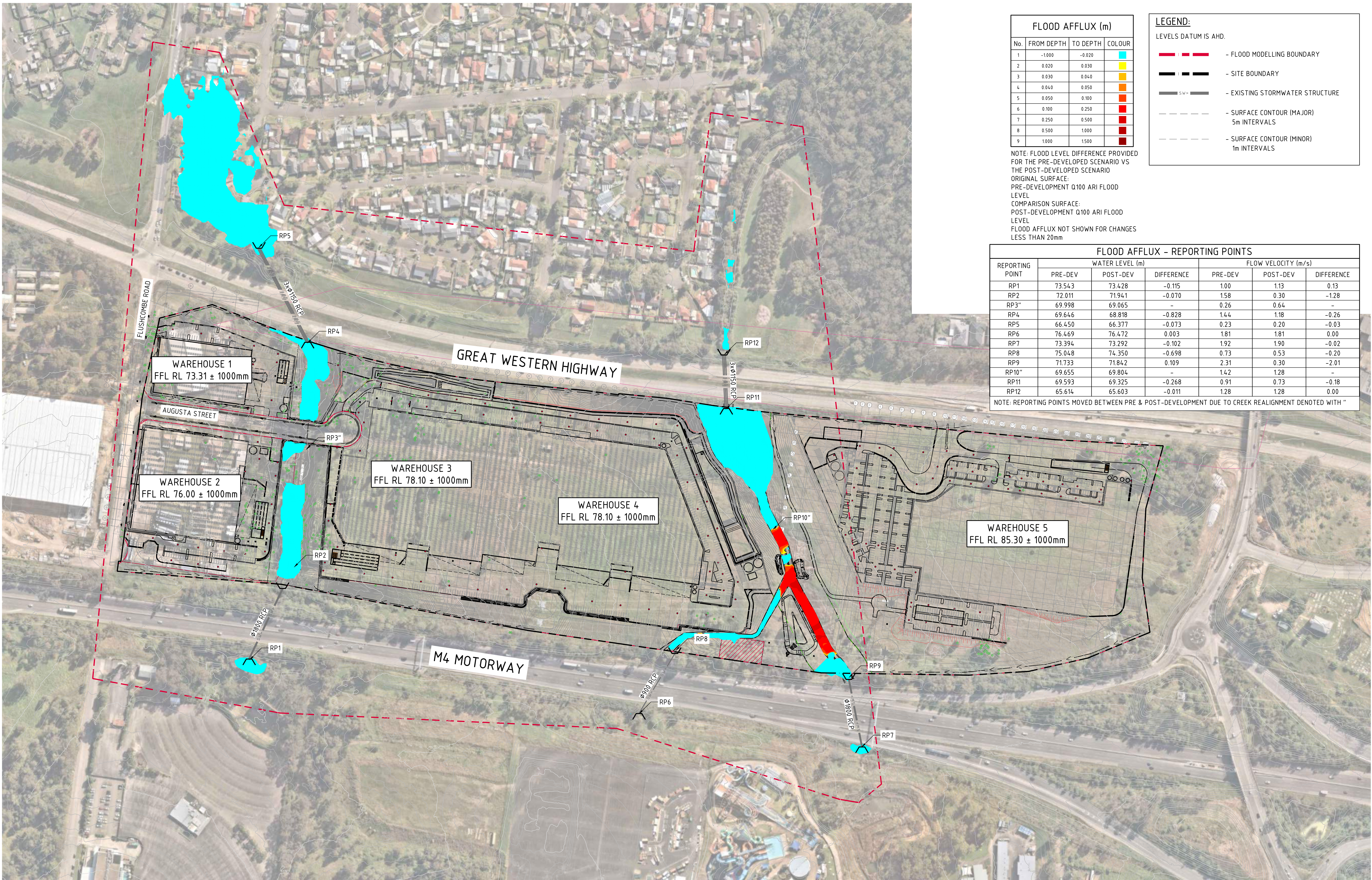
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DESIGNED	LDV
DRAWN	JB
DATE	JUNE '22
CHECKED	MW
SIZE	B1
SCALE	AS SHOWN
CAD REF:	C013904.03-F002



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DRAWING TITLE	1% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
DRAWING No	C013904.03-F002
ISSUE	E



FLOOD AFFLUX (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	-1.000	-0.020	CYAN
2	0.020	0.030	YELLOW
3	0.030	0.040	ORANGE
4	0.040	0.050	RED-ORANGE
5	0.050	0.100	RED
6	0.100	0.250	DARK RED
7	0.250	0.500	DARK RED
8	0.500	1.000	DARK RED
9	1.000	1.500	DARK RED

NOTE: FLOOD LEVEL DIFFERENCE PROVIDED FOR THE PRE-DEVELOPED SCENARIO VS THE POST-DEVELOPED SCENARIO
ORIGINAL SURFACE:
PRE-DEVELOPMENT Q100 ARI FLOOD LEVEL
COMPARISON SURFACE:
POST-DEVELOPMENT Q100 ARI FLOOD LEVEL
FLOOD AFFLUX NOT SHOWN FOR CHANGES LESS THAN 20mm

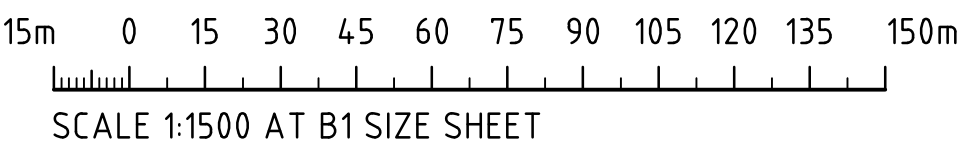
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LEVELS DATUM IS AHD.	
---	- FLOOD MODELLING BOUNDARY
---	- SITE BOUNDARY
---	- EXISTING STORMWATER STRUCTURE
---	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
---	- SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD AFFLUX - REPORTING POINTS						
REPORTING POINT	WATER LEVEL (m)			FLOW VELOCITY (m/s)		
	PRE-DEV	POST-DEV	DIFFERENCE	PRE-DEV	POST-DEV	DIFFERENCE
RP1	73.543	73.428	-0.115	1.00	1.13	0.13
RP2	72.011	71.941	-0.070	1.58	0.30	-1.28
RP3"	69.998	69.065	-	0.26	0.64	-
RP4	69.646	68.818	-0.828	1.44	1.18	-0.26
RP5	66.450	66.377	-0.073	0.23	0.20	-0.03
RP6	76.469	76.472	0.003	1.81	1.81	0.00
RP7	73.394	73.292	-0.102	1.92	1.90	-0.02
RP8	75.048	74.350	-0.698	0.73	0.53	-0.20
RP9	71.733	71.842	0.109	2.31	0.30	-2.01
RP10"	69.655	69.804	-	1.42	1.28	-
RP11	69.593	69.325	-0.268	0.91	0.73	-0.18
RP12	65.614	65.603	-0.011	1.28	1.28	0.00

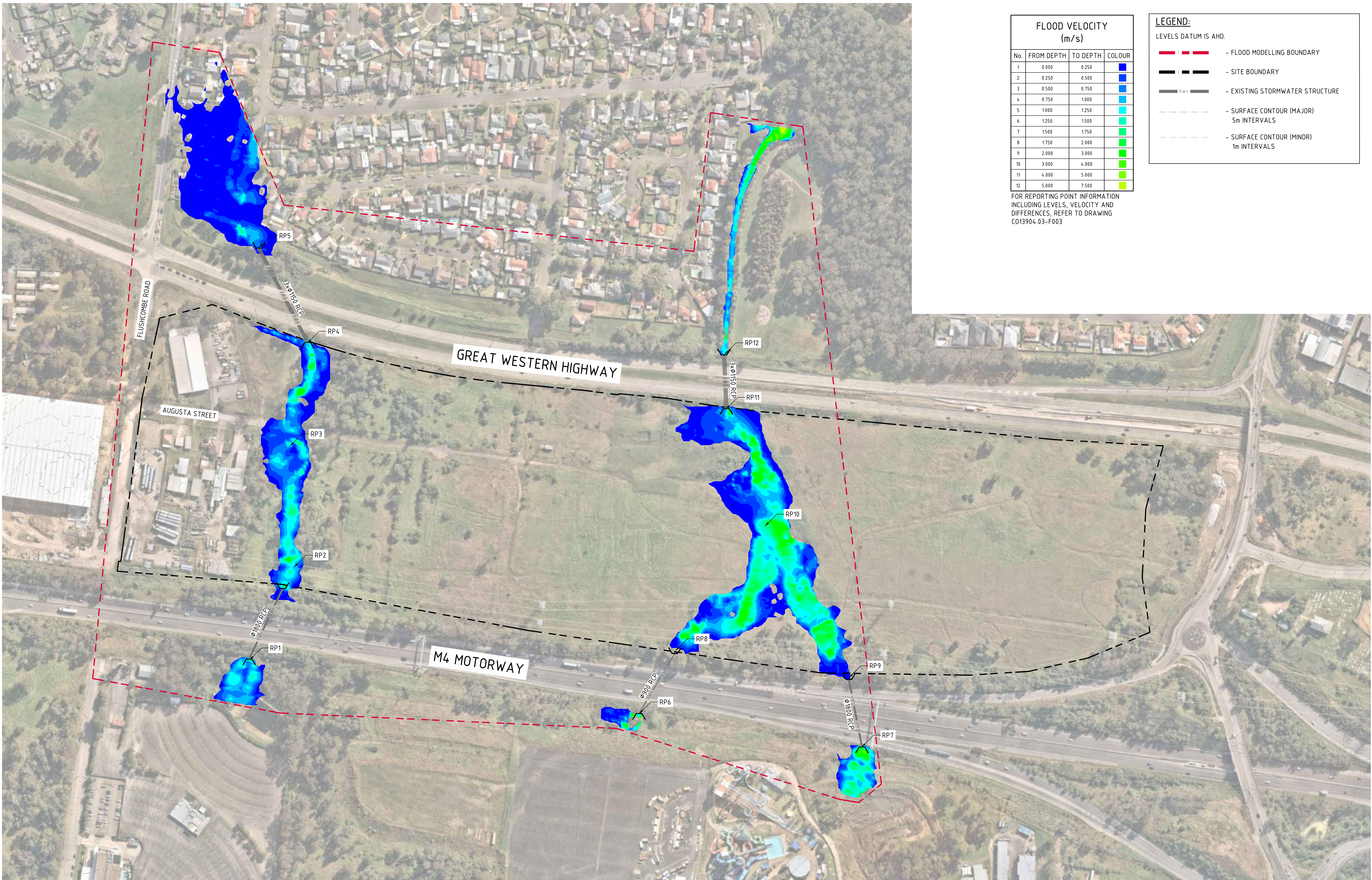
NOTE: REPORTING POINTS MOVED BETWEEN PRE & POST-DEVELOPMENT DUE TO CREEK REALIGNMENT DENOTED WITH "

1% AEP FLOOD LEVEL AFFLUX
SCALE 1:1500

FOR DEVELOPMENT APPLICATION



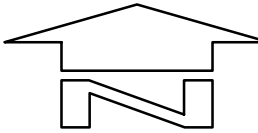
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FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

FOR REPORTING POINT INFORMATION INCLUDING LEVELS, VELOCITY AND DIFFERENCES, REFER TO DRAWING C013904.03-F003

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS



1% AEP PRE-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

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SCALE 1:1500 AT B1 SIZE SHEET

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ISSUED FOR INFORMATION		23.06.23	A
AMENDMENTS		DATE	ISSUE

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CLIENT	LOGOS

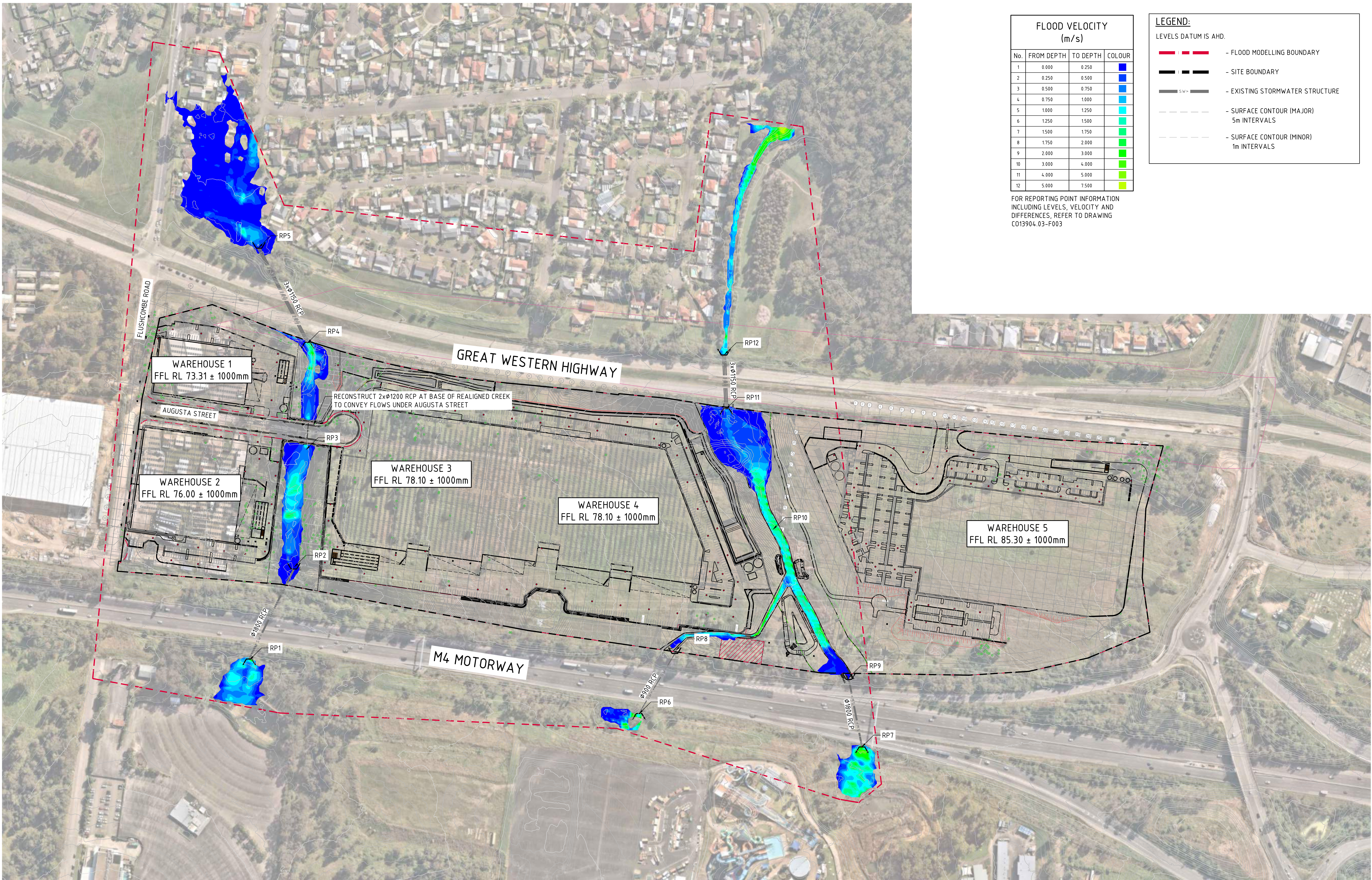
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DRAWN	JB
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CHECKED	MW
SIZE	B1
SCALE	AS SHOWN
CAD REF:	C013904.03-F004



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DRAWING No	C013904.03-F004
ISSUE	B

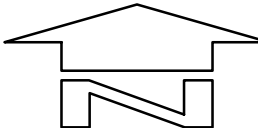


FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

FOR REPORTING POINT INFORMATION INCLUDING LEVELS, VELOCITY AND DIFFERENCES, REFER TO DRAWING C013904.03-F003

LEGEND:
LEVELS DATUM IS AHD.

- FLOOD MODELLING BOUNDARY
- SITE BOUNDARY
- EXISTING STORMWATER STRUCTURE
- SURFACE CONTOUR (MAJOR) 5m INTERVALS
- SURFACE CONTOUR (MINOR) 1m INTERVALS



1% AEP POST-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	E	
REVISED WEST CREEK	01.03.24	D	
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	C	
ISSUED FOR SSDA	30.06.23	B	
ISSUED FOR INFORMATION	23.06.23	A	
AMENDMENTS	DATE	ISSUE	AMENDMENTS

ARCHITECT

PACE
ARCHITECTS

CLIENT

LOGOS

PROJECT

PROPOSED WAREHOUSE DISTRIBUTION
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF.
LDV	JB	JUNE '22	MW	B1	AS SHOWN	C013904.03-F005

CONSULT AUSTRALIA

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CRC
COSTIN ROE CONSULTING

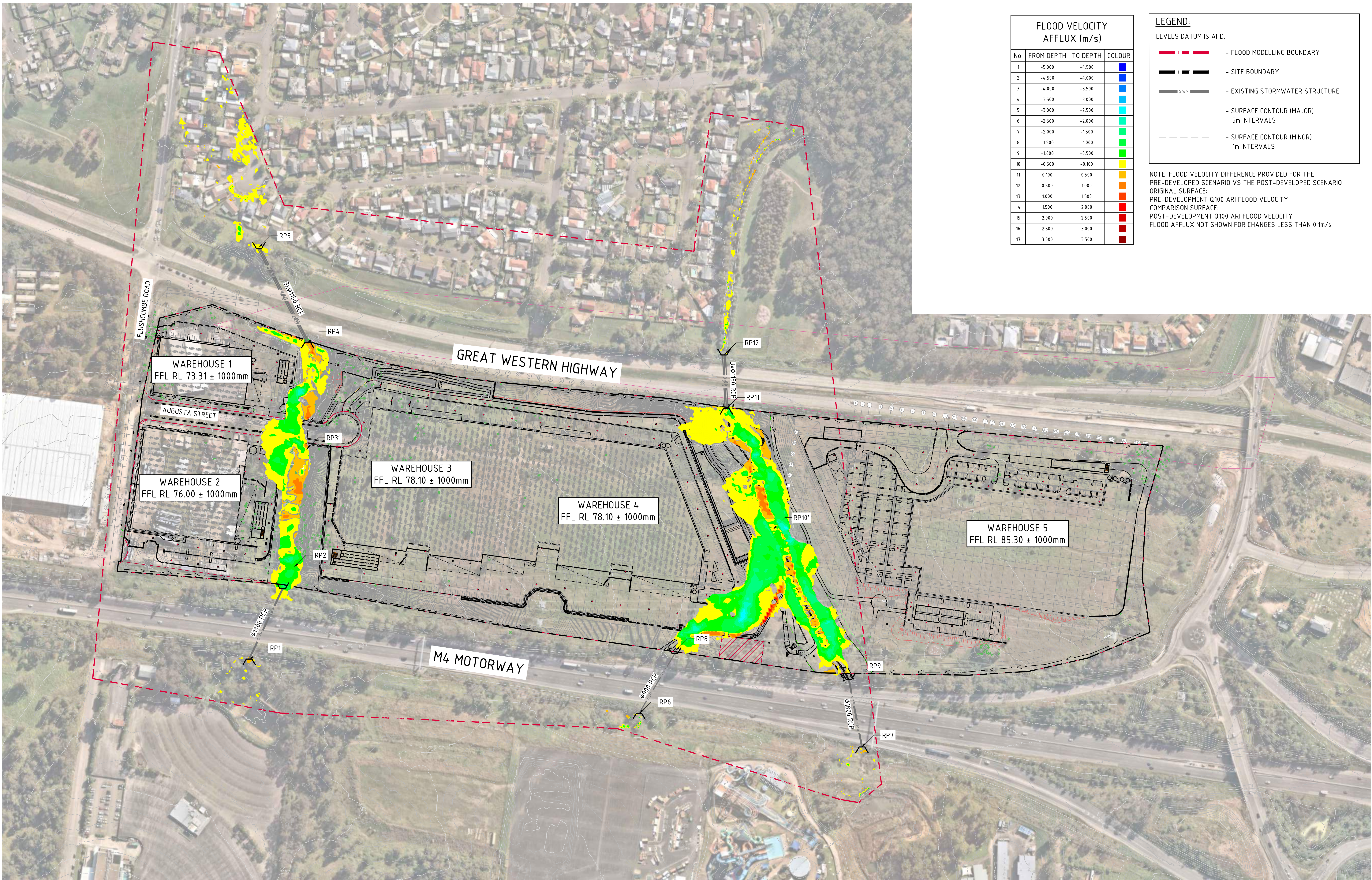
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE

1% AEP POST-DEVELOPMENT FLOOD VELOCITY

DRAWING No C013904.03-F005

ISSUE E



FLOOD VELOCITY AFFLUX (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	-5.000	-4.500	Blue
2	-4.500	-4.000	Blue
3	-4.000	-3.500	Blue
4	-3.500	-3.000	Blue
5	-3.000	-2.500	Blue
6	-2.500	-2.000	Blue
7	-2.000	-1.500	Blue
8	-1.500	-1.000	Blue
9	-1.000	-0.500	Blue
10	-0.500	-0.100	Blue
11	0.100	0.500	Blue
12	0.500	1.000	Blue
13	1.000	1.500	Blue
14	1.500	2.000	Blue
15	2.000	2.500	Blue
16	2.500	3.000	Blue
17	3.000	3.500	Blue

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

NOTE: FLOOD VELOCITY DIFFERENCE PROVIDED FOR THE PRE-DEVELOPED SCENARIO VS THE POST-DEVELOPED SCENARIO
ORIGINAL SURFACE:
PRE-DEVELOPMENT Q100 ARI FLOOD VELOCITY
COMPARISON SURFACE:
POST-DEVELOPMENT Q100 ARI FLOOD VELOCITY
FLOOD AFFLUX NOT SHOWN FOR CHANGES LESS THAN 0.1m/s

1% AEP FLOOD VELOCITY AFFLUX
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	D		
REVISED WEST CREEK	01.03.24	C		
ISSUED FOR SSDA	30.06.23	B		
ISSUED FOR INFORMATION	23.06.23	A		
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE



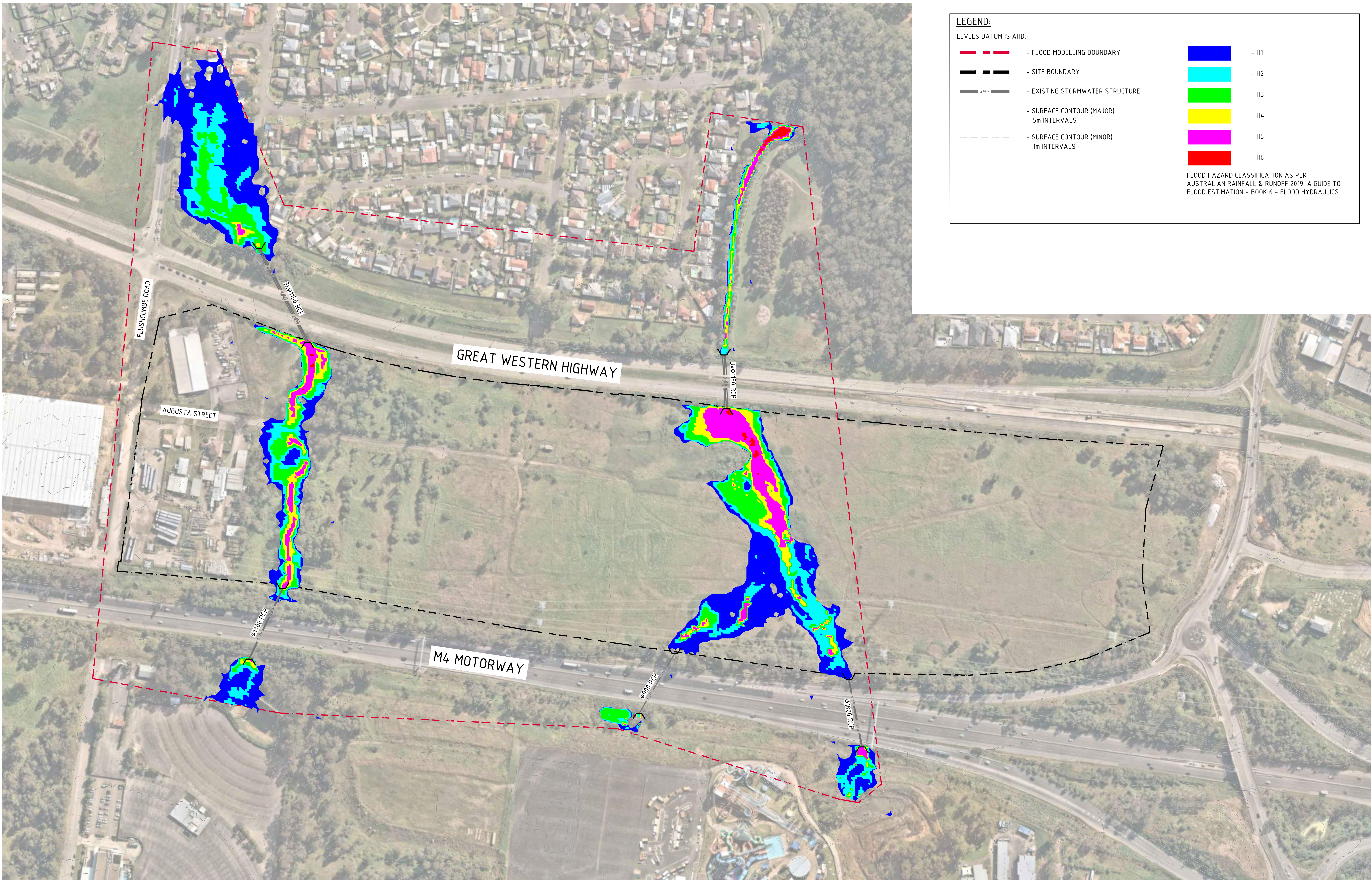
PROJECT			
PROPOSED WAREHOUSE DISTRIBUTION			
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148			
DESIGNED	DRAWN	DATE	CHECKED
LDV	JB	JUNE '22	MW
SIZE	SCALE	AS SHOWN	CAD REF:
B1	A5		C013904.03-F006



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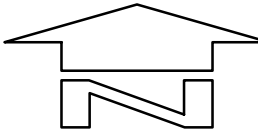
DRAWING TITLE	
1% AEP FLOOD VELOCITY AFFLUX	
DRAWING No	C013904.03-F006
ISSUE	D



LEGEND:
LEVELS DATUM IS AHD.

	- FLOOD MODELLING BOUNDARY		- H1
	- SITE BOUNDARY		- H2
	- EXISTING STORMWATER STRUCTURE		- H3
	- SURFACE CONTOUR (MAJOR) 5m INTERVALS		- H4
	- SURFACE CONTOUR (MINOR) 1m INTERVALS		- H5
			- H6

FLOOD HAZARD CLASSIFICATION AS PER
AUSTRALIAN RAINFALL & RUNOFF 2019, A GUIDE TO
FLOOD ESTIMATION - BOOK 6 - FLOOD HYDRAULICS



1% AEP PRE-DEVELOPMENT FLOOD HAZARD
SCALE 1:1500

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

FOR DEVELOPMENT APPLICATION

ISSUED FOR SSDA	30.06.23	B		
ISSUED FOR INFORMATION	23.06.23	A		
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE

ARCHITECT
PACE
ARCHITECTS

CLIENT
LOGOS

PROJECT
PROPOSED WAREHOUSE DISTRIBUTION
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148

DESIGNED	DRAWN	DATE	CHECKED	SIZE	SCALE	CAD REF.
LDV	JB	JUNE '22	MW	B1	AS SHOWN	C013904.03-F007

CONSULT AUSTRALIA

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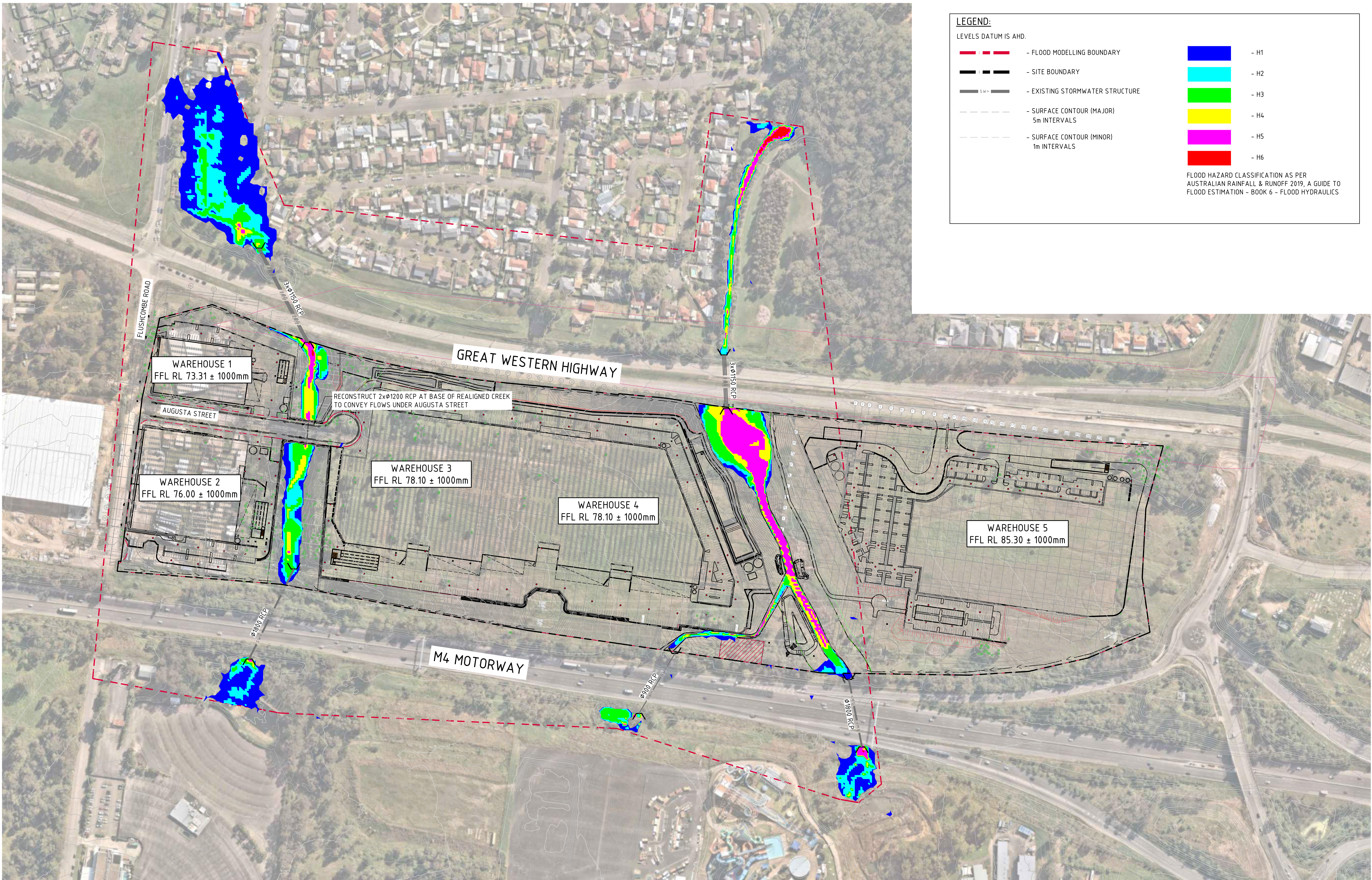
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CRC
COSTIN ROE CONSULTING
CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE
1% AEP PRE-DEVELOPMENT FLOOD HAZARD

DRAWING No
C013904.03-F007

ISSUE
B



LEGEND:
LEVELS DATUM IS AHD.

- FLOOD MODELLING BOUNDARY

- SITE BOUNDARY

- EXISTING STORMWATER STRUCTURE

- SURFACE CONTOUR (MAJOR)
5m INTERVALS

- SURFACE CONTOUR (MINOR)
1m INTERVALS

- H1

- H2

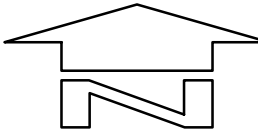
- H3

- H4

- H5

- H6

FLOOD HAZARD CLASSIFICATION AS PER
AUSTRALIAN RAINFALL & RUNOFF 2019, A GUIDE TO
FLOOD ESTIMATION - BOOK 6 - FLOOD HYDRAULICS



1% AEP POST-DEVELOPMENT FLOOD HAZARD
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	E		
REVISED WEST CREEK	01.03.24	D		
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	C		
ISSUED FOR SSDA	30.06.23	B		
ISSUED FOR INFORMATION	23.06.23	A		
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE

ARCHITECT

PACE
ARCHITECTS

CLIENT

LOGOS

PROJECT

PROPOSED WAREHOUSE DISTRIBUTION
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148

DESIGNED	LDV	DRAWN	JB	DATE	JUNE '22	CHECKED	MW	SIZE	B1	SCALE	AS SHOWN	CAD REF:	C013904.03-F008
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COSTIN ROE CONSULTING

CIVIL & STRUCTURAL ENGINEERS

DRAWING TITLE

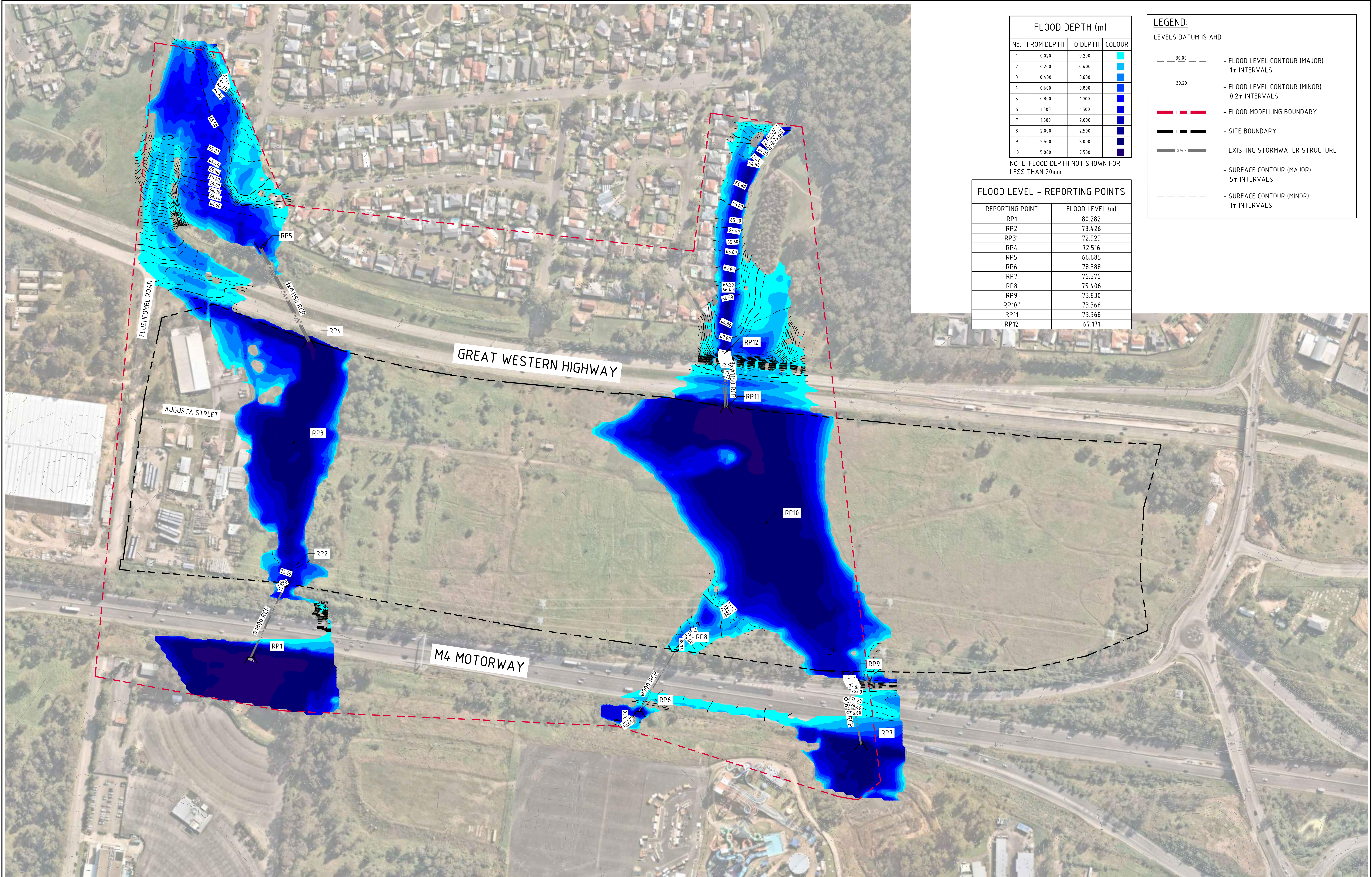
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DRAWING No

C013904.03-F008

ISSUE

E

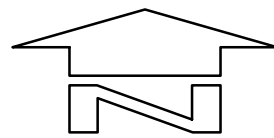


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	
2	0.200	0.400	
3	0.400	0.600	
4	0.600	0.800	
5	0.800	1.000	
6	1.000	1.500	
7	1.500	2.000	
8	2.000	2.500	
9	2.500	5.000	
10	5.000	7.500	

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	80.282
RP2	73.426
RP3"	72.525
RP4	72.516
RP5	66.685
RP6	78.388
RP7	76.576
RP8	75.406
RP9	73.830
RP10"	73.368
RP11	73.368
RP12	67.171

LEGEND:	
LEVELS DATUM IS AHD.	
	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
	- FLOOD MODELLING BOUNDARY
	- SITE BOUNDARY
	- EXISTING STORMWATER STRUCTURE
	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
	- SURFACE CONTOUR (MINOR) 1m INTERVALS

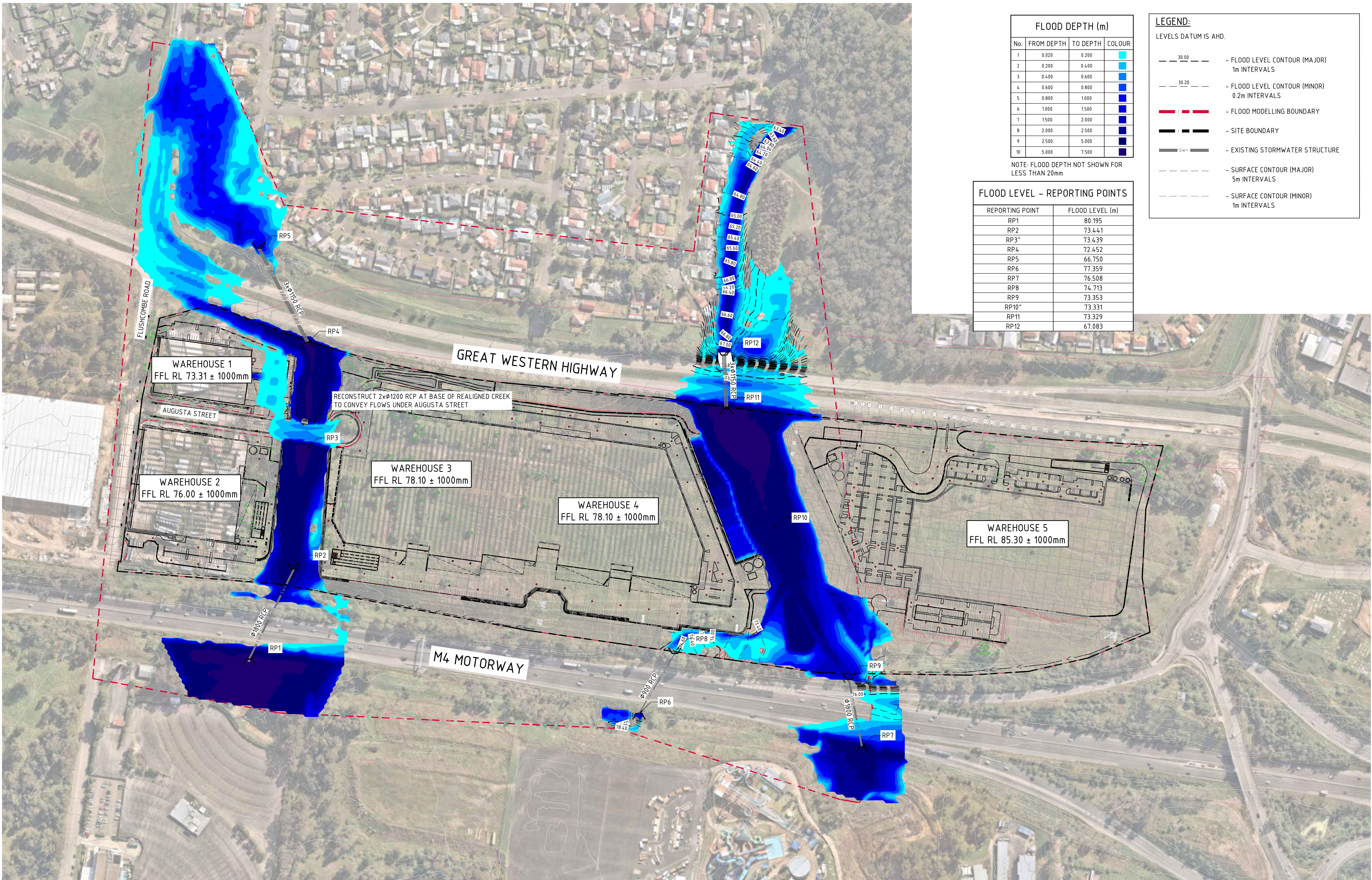


PMF PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

																Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au				DRAWING TITLE PMF PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS	
ISSUED FOR SSDA				30.06.23		A												DRAWING No		C013904.03-F010	
AMENDMENTS				DATE		ISSUE		AMENDMENTS		DATE		ISSUE						ISSUE		A	

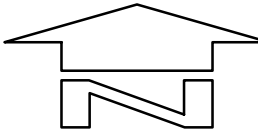


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	Light Blue
2	0.200	0.400	Medium Blue
3	0.400	0.600	Dark Blue
4	0.600	0.800	Very Dark Blue
5	0.800	1.000	Dark Blue
6	1.000	1.500	Dark Blue
7	1.500	2.000	Dark Blue
8	2.000	2.500	Dark Blue
9	2.500	5.000	Dark Blue
10	5.000	7.500	Dark Blue

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	80.195
RP2	73.441
RP3"	73.439
RP4	72.452
RP5	66.750
RP6	77.359
RP7	76.508
RP8	74.713
RP9	73.353
RP10"	73.331
RP11	73.329
RP12	67.083

- LEGEND:**
LEVELS DATUM IS AHD.
- 30.00 — FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
 - 30.20 — FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
 - FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS



PMF POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	D			
REVISED WEST CREEK	01.03.24	C			
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	B			
ISSUED FOR SSDA	30.06.23	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



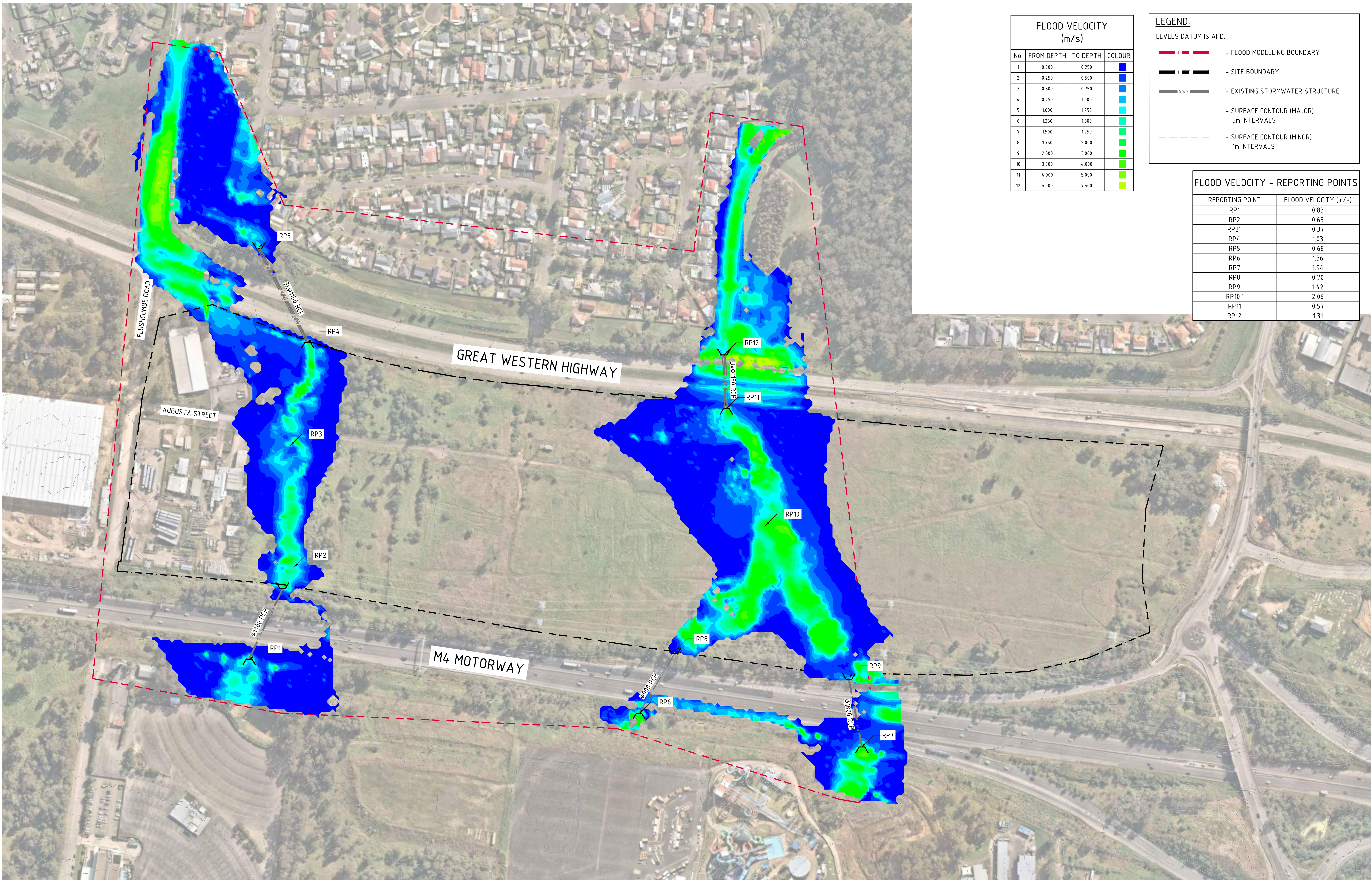
PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148					
DESIGNED LDV	DRAWN JB	DATE JUNE '22	CHECKED MW	SIZE B1	SCALE AS SHOWN



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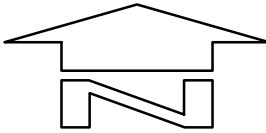
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DRAWING No	C013904.03-F011	ISS



FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	0.83
RP2	0.65
RP3	0.37
RP4	1.03
RP5	0.68
RP6	1.36
RP7	1.94
RP8	0.70
RP9	1.42
RP10	2.06
RP11	0.57
RP12	1.31



PMF PRE-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA AMENDMENTS		30.06.23	A	AMENDMENTS		DATE	ISSUE

ARCHITECT
PACE
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LOGOS

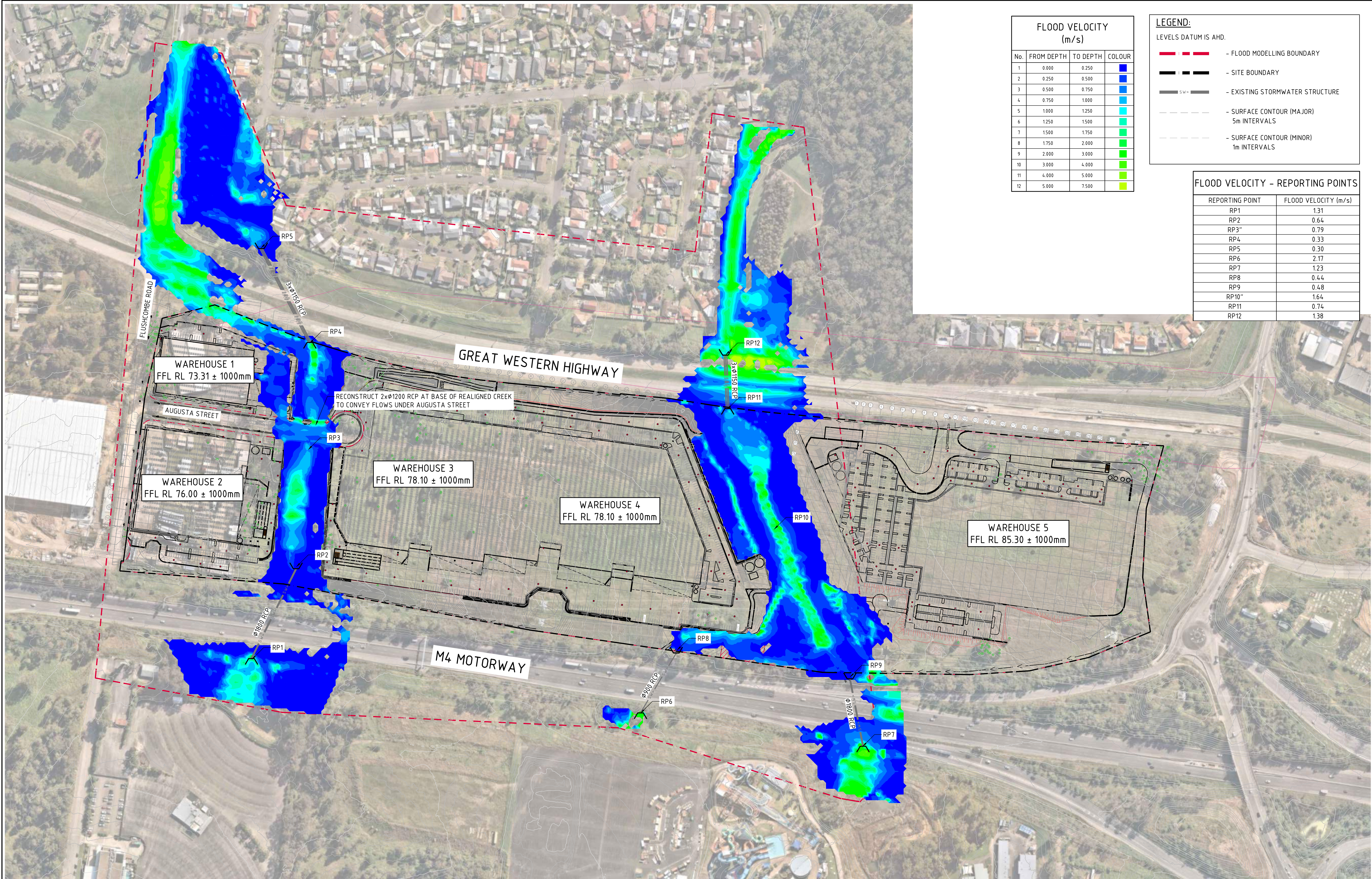
PROJECT
PROPOSED WAREHOUSE DISTRIBUTION
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148



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DRAWING TITLE	
PMF PRE-DEVELOPMENT FLOOD VELOCITY	
DRAWING No	C013904.03-F012
ISSUE	A



FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

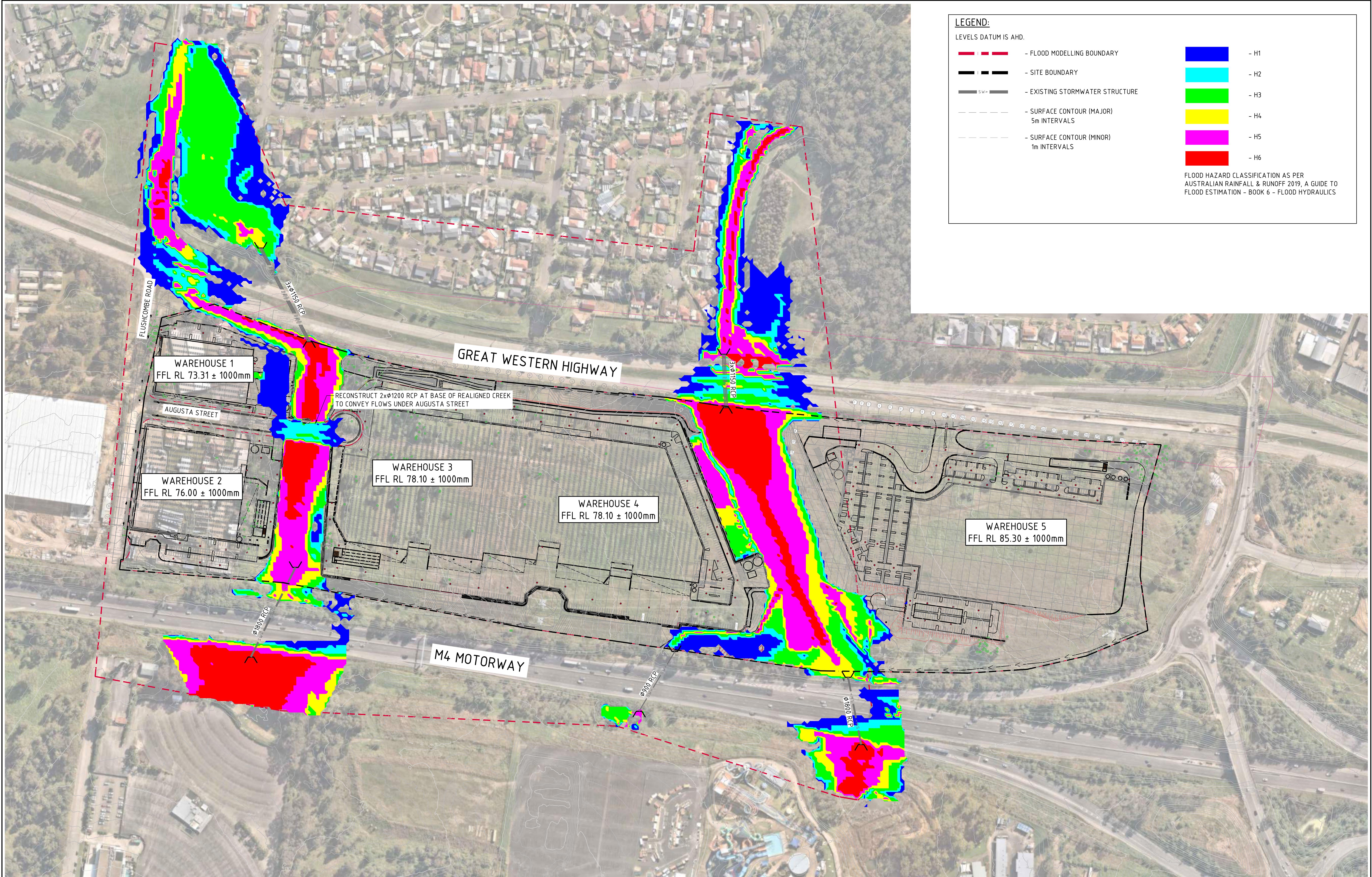
FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	1.31
RP2	0.64
RP3	0.79
RP4	0.33
RP5	0.30
RP6	2.17
RP7	1.23
RP8	0.44
RP9	0.48
RP10	1.64
RP11	0.74
RP12	1.38

PMF POST-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK26.07.24D REVISED WEST CREEK01.03.24C CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED10.07.23B ISSUED FOR SSDA30.06.23A AMENDMENTS	PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148	ARCHITECT PACE ARCHITECTS	CLIENT LOGOS	CONSULT AUSTRALIA	COSTIN ROE CONSULTING Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 f: +61 2 9241 3731 e: mail@costinroe.com.au w: costinroe.com.au	CIVIL & STRUCTURAL ENGINEERS	DRAWING TITLE PMF POST-DEVELOPMENT FLOOD VELOCITY
DATE ISSUE AMENDMENTS DATE ISSUE	DESIGNED LDV DRAWN JB DATE JUNE '22 CHECKED MW SCALE B1 AS SHOWN CAD REF: C013904.03-F013	DRAWING No C013904.03-F013	ISSUE D				

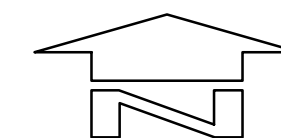


LEGEND:
LEVELS DATUM IS AHD.

- FLOOD MODELLING BOUNDARY
- SITE BOUNDARY
- EXISTING STORMWATER STRUCTURE
- SURFACE CONTOUR (MAJOR) 5m INTERVALS
- SURFACE CONTOUR (MINOR) 1m INTERVALS

- H1
- H2
- H3
- H4
- H5
- H6

FLOOD HAZARD CLASSIFICATION AS PER AUSTRALIAN RAINFALL & RUNOFF 2019, A GUIDE TO FLOOD ESTIMATION - BOOK 6 - FLOOD HYDRAULICS

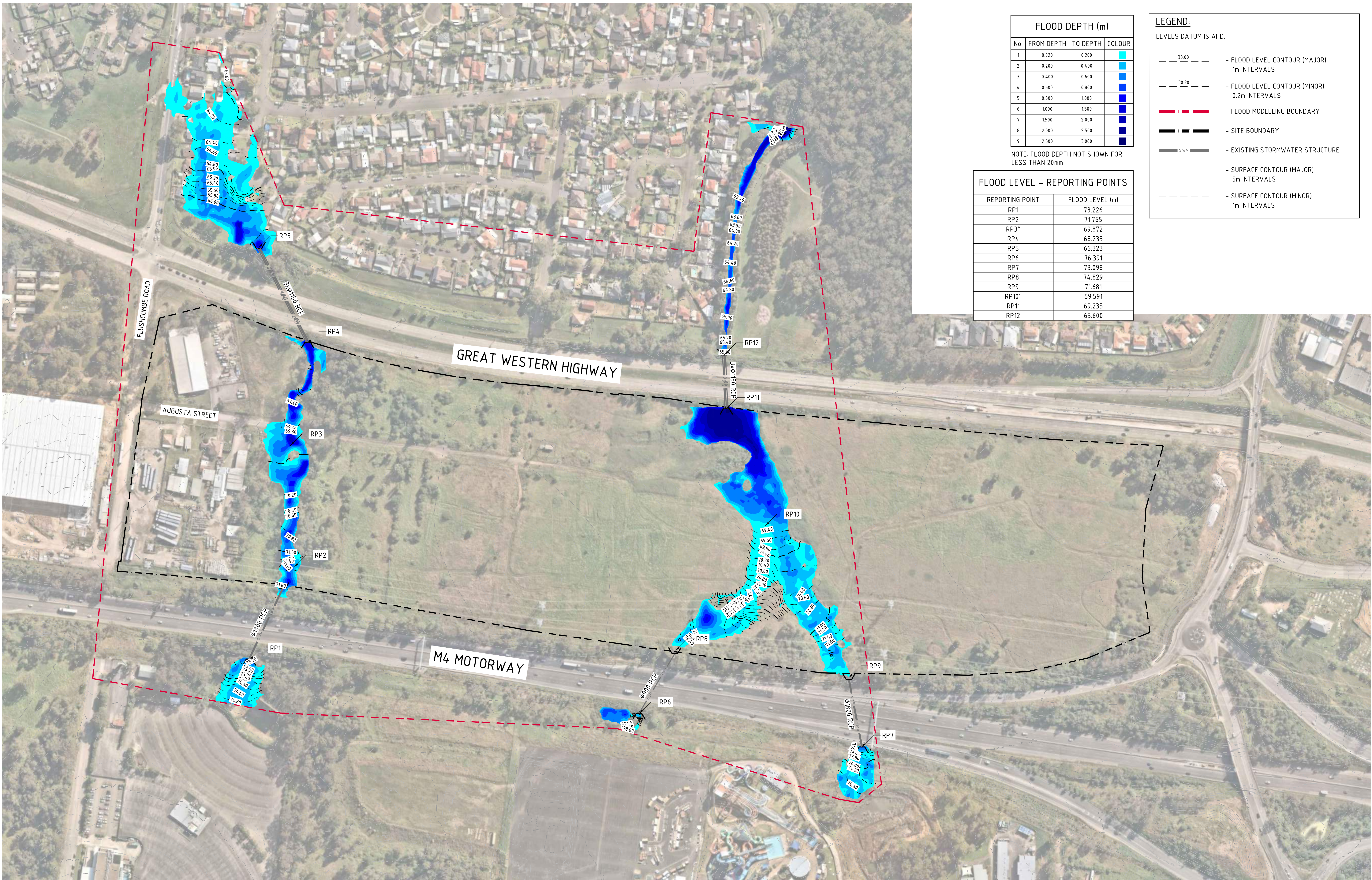


PMF POST-DEVELOPMENT FLOOD HAZARD
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

						ARCHITECT			CLIENT			PROJECT						Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au			 CIVIL & STRUCTURAL ENGINEERS			DRAWING TITLE														
REVISED BLACKTOWN CREEK REVISED WEST CREEK CORRECTED WAREHOUSE 5's NUMBER, AS CLOUDED ISSUED FOR SSDA AMENDMENTS			26.07.24 01.03.24 10.07.23 30.06.23 DATE			D C B A ISSUE			AMENDMENTS			DATE												ISSUE			PMF POST-DEVELOPMENT FLOOD HAZARD											
DESIGNED LDV			DRAWN JB			DATE JUNE '22			CHECKED MW			SIZE B1			SCALE AS SHOWN			CAD REF: C013904.03-F015			E: +61 2 9241 3731 w: costinroe.com.au						DRAWING No			C013904.03-F015			ISSUE			D		

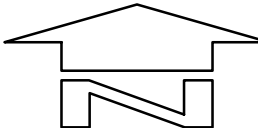


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	
2	0.200	0.400	
3	0.400	0.600	
4	0.600	0.800	
5	0.800	1.000	
6	1.000	1.500	
7	1.500	2.000	
8	2.000	2.500	
9	2.500	3.000	

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	73.226
RP2	71.765
RP3"	69.872
RP4	68.233
RP5	66.323
RP6	76.391
RP7	73.098
RP8	74.829
RP9	71.681
RP10"	69.591
RP11	69.235
RP12	65.600

LEGEND:	
LEVELS DATUM IS AHD.	
	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
	- FLOOD MODELLING BOUNDARY
	- SITE BOUNDARY
	- EXISTING STORMWATER STRUCTURE
	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
	- SURFACE CONTOUR (MINOR) 1m INTERVALS



5% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA		30.06.23	A
AMENDMENTS	DATE	ISSUE	AMENDMENTS



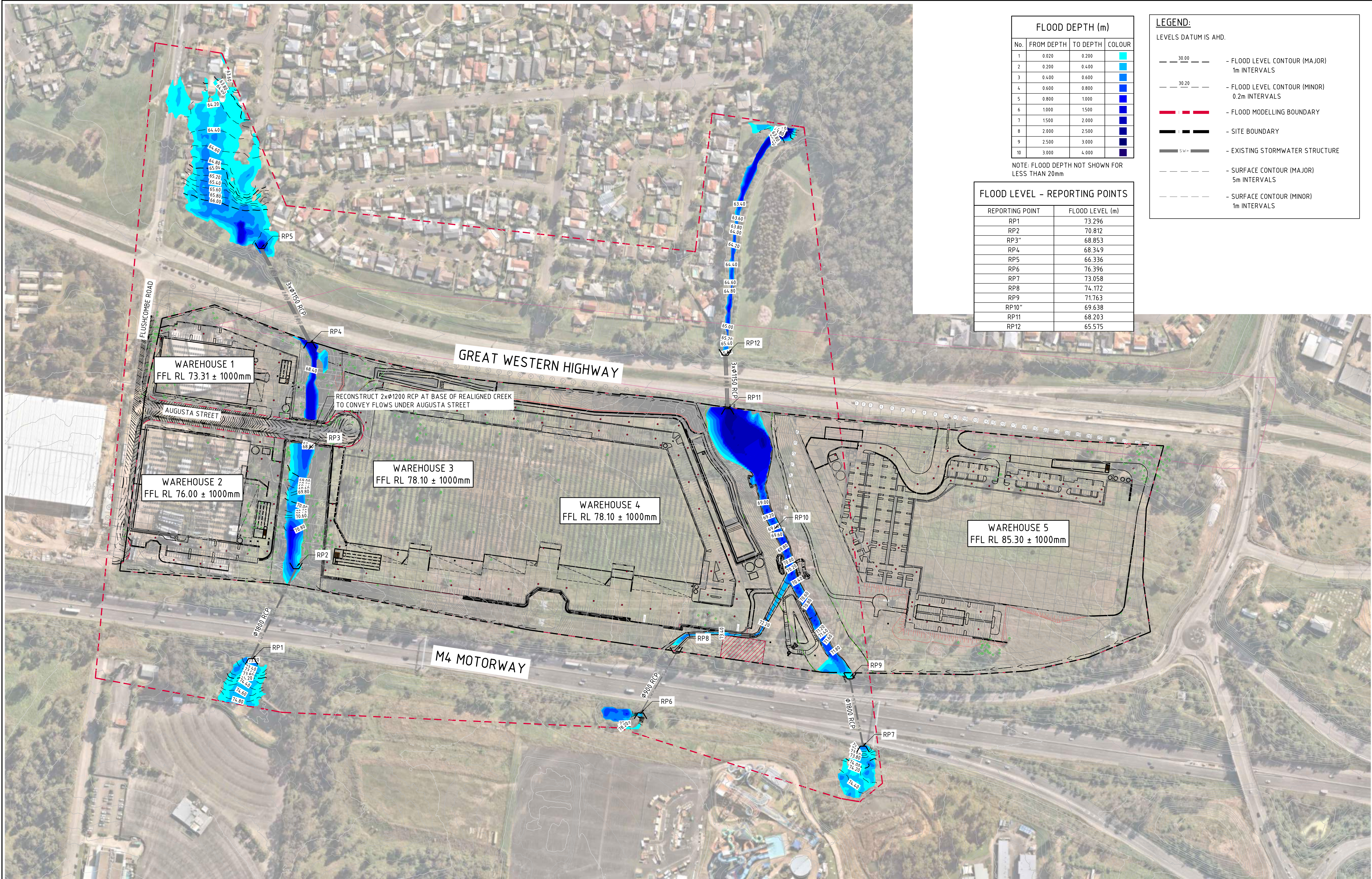
PROJECT		PROPOSED WAREHOUSE DISTRIBUTION	
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148			
DESIGNED	DRAWN	DATE	CHECKED
LDV	JB	JUNE '22	MW
SIZE	SCALE		
B1	AS SHOWN		
CAD REF:	C013904.03-F020		



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DRAWING TITLE	
5% AEP PRE-DEVELOPMENT FLOOD LEVEL AND DEPTHS	
DRAWING No	C013904.03-F020
ISS	

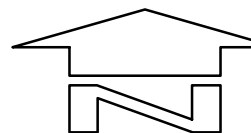


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	
2	0.200	0.400	
3	0.400	0.600	
4	0.600	0.800	
5	0.800	1.000	
6	1.000	1.500	
7	1.500	2.000	
8	2.000	2.500	
9	2.500	3.000	
10	3.000	4.000	

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	73.296
RP2	70.812
RP3"	68.853
RP4	68.349
RP5	66.336
RP6	76.396
RP7	73.058
RP8	74.172
RP9	71.763
RP10"	69.638
RP11	68.203
RP12	65.575

LEGEND:	
LEVELS DATUM IS AHD.	
	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
	- FLOOD MODELLING BOUNDARY
	- SITE BOUNDARY
	- EXISTING STORMWATER STRUCTURE
	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
	- SURFACE CONTOUR (MINOR) 1m INTERVALS



5% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	D		
REVISED WEST CREEK	01.03.24	C		
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	B		
ISSUED FOR SSDA	30.06.23	A		
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE



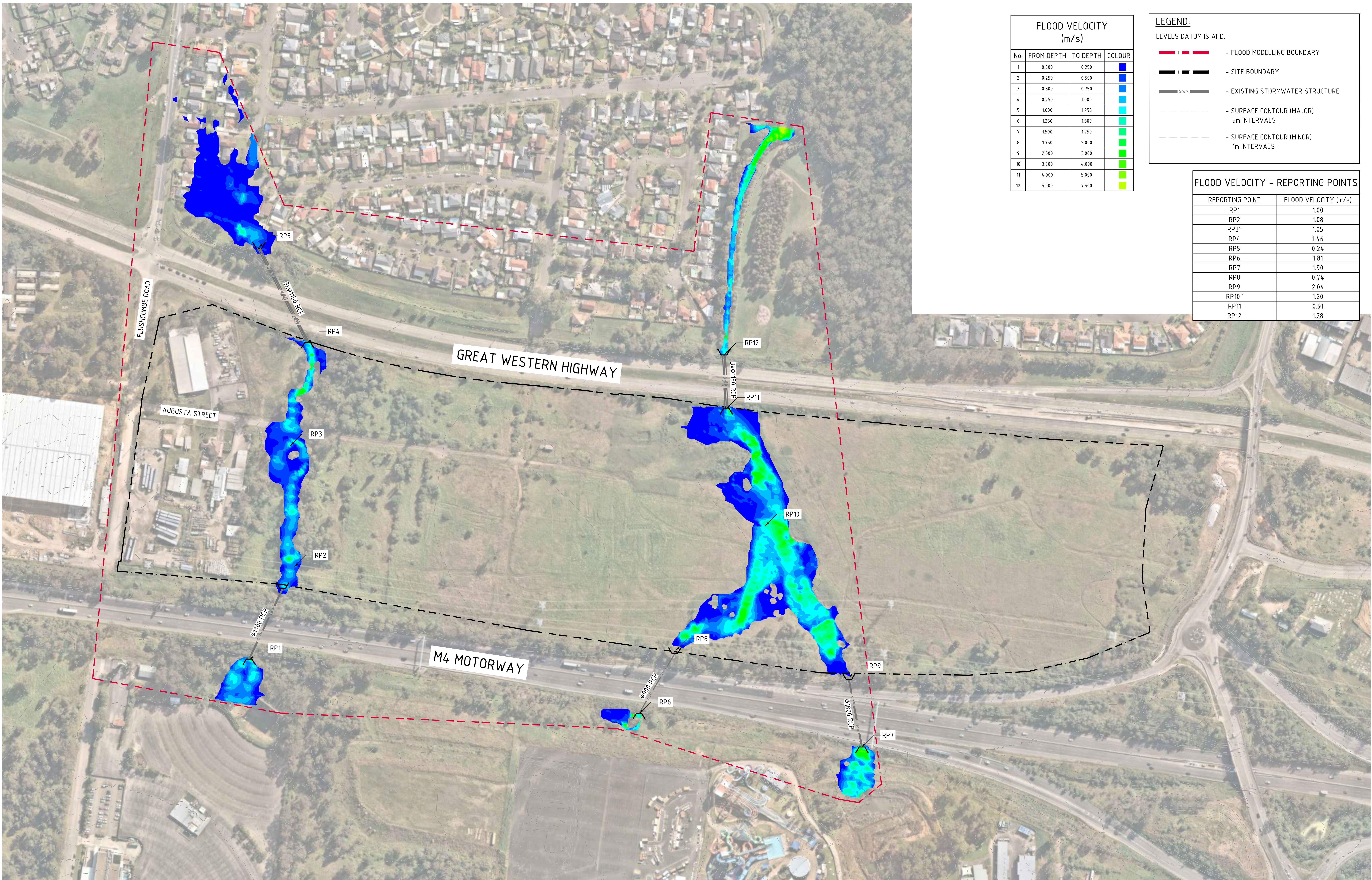
PROJECT		PROPOSED WAREHOUSE DISTRIBUTION	
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148			
DESIGNED	LDV	DRAWN	JB
DATE	JUNE '22	CHECKED	MW
SIZE	B1	SCALE	AS SHOWN
CAD REF:	C013904.03-F021		



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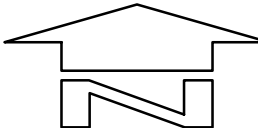
DRAWING TITLE		5% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS	
DRAWING No	C013904.03-F021	ISSUE	D



FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

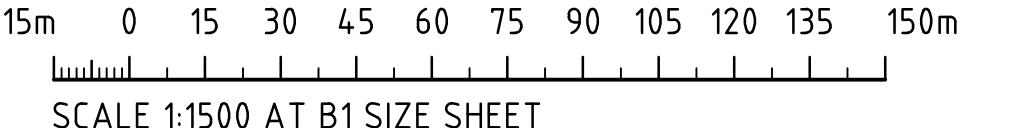
- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	1.00
RP2	1.08
RP3	1.05
RP4	1.46
RP5	0.24
RP6	1.81
RP7	1.90
RP8	0.74
RP9	2.04
RP10	1.20
RP11	0.91
RP12	1.28



5% AEP PRE-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION



ISSUED FOR SSDA AMENDMENTS		30.06.23 DATE		A ISSUE		AMENDMENTS		DATE		ISSUE	



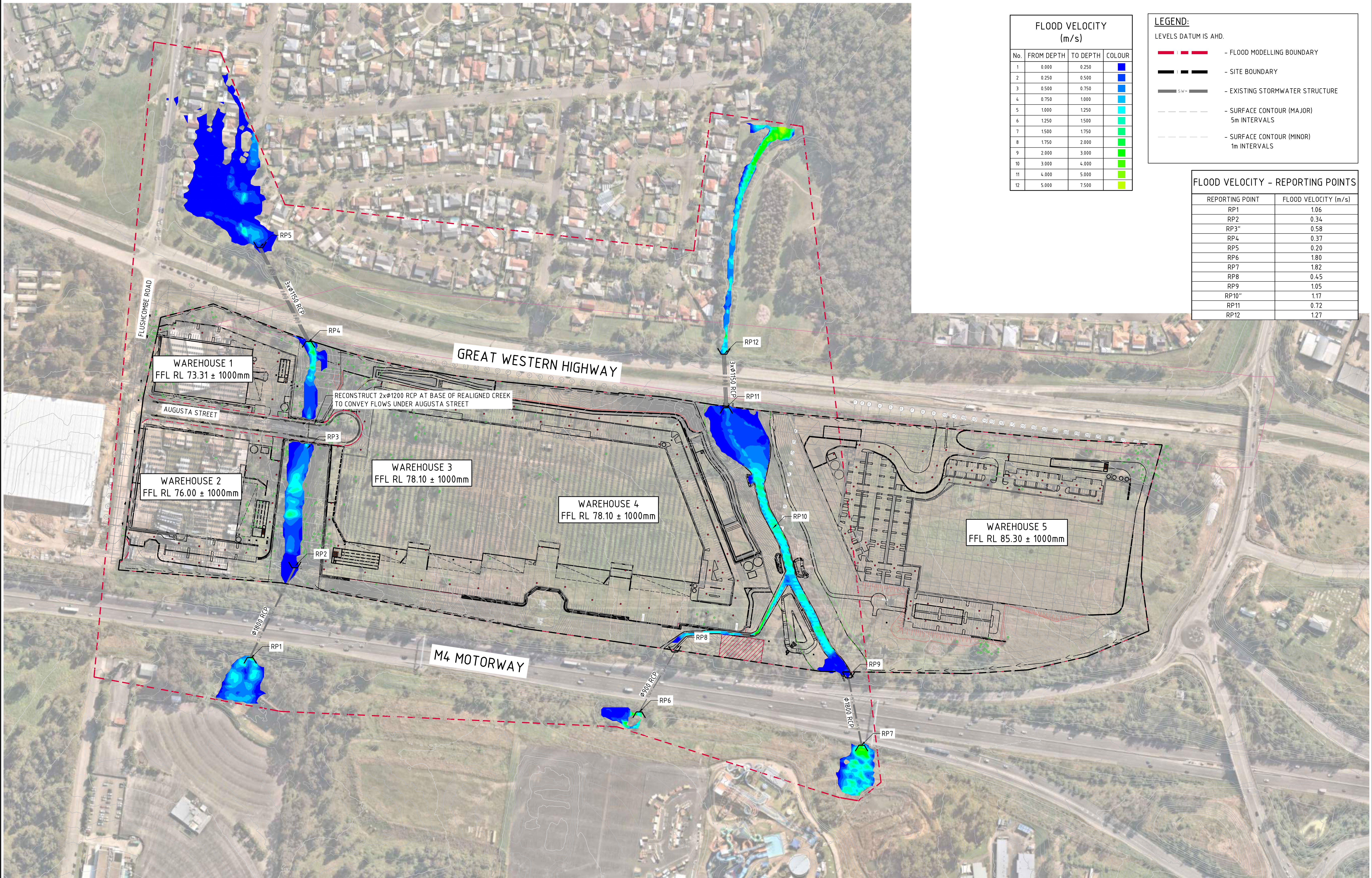
PROJECT		PROPOSED WAREHOUSE DISTRIBUTION		AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148	
DESIGNED	LDV	DRAWN	JB	DATE	JUNE '22
CHECKED	MW	SIZE	B1	SCALE	AS SHOWN
CAD REF:	C013904.03-F022				



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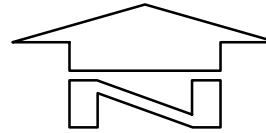
DRAWING TITLE	
5% AEP PRE-DEVELOPMENT FLOOD VELOCITY	
DRAWING No	C013904.03-F022
ISSUE	A



FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	1.06
RP2	0.34
RP3	0.58
RP4	0.37
RP5	0.20
RP6	1.80
RP7	1.82
RP8	0.45
RP9	1.05
RP10	1.17
RP11	0.72
RP12	1.27



5% AEP POST-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

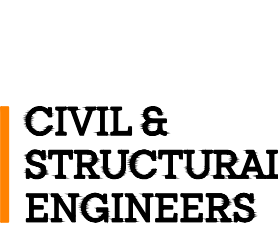
REVISED BLACKTOWN CREEK	26.07.24	D			
REVISED WEST CREEK	01.03.24	C			
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	B			
ISSUED FOR SSDA	30.06.23	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



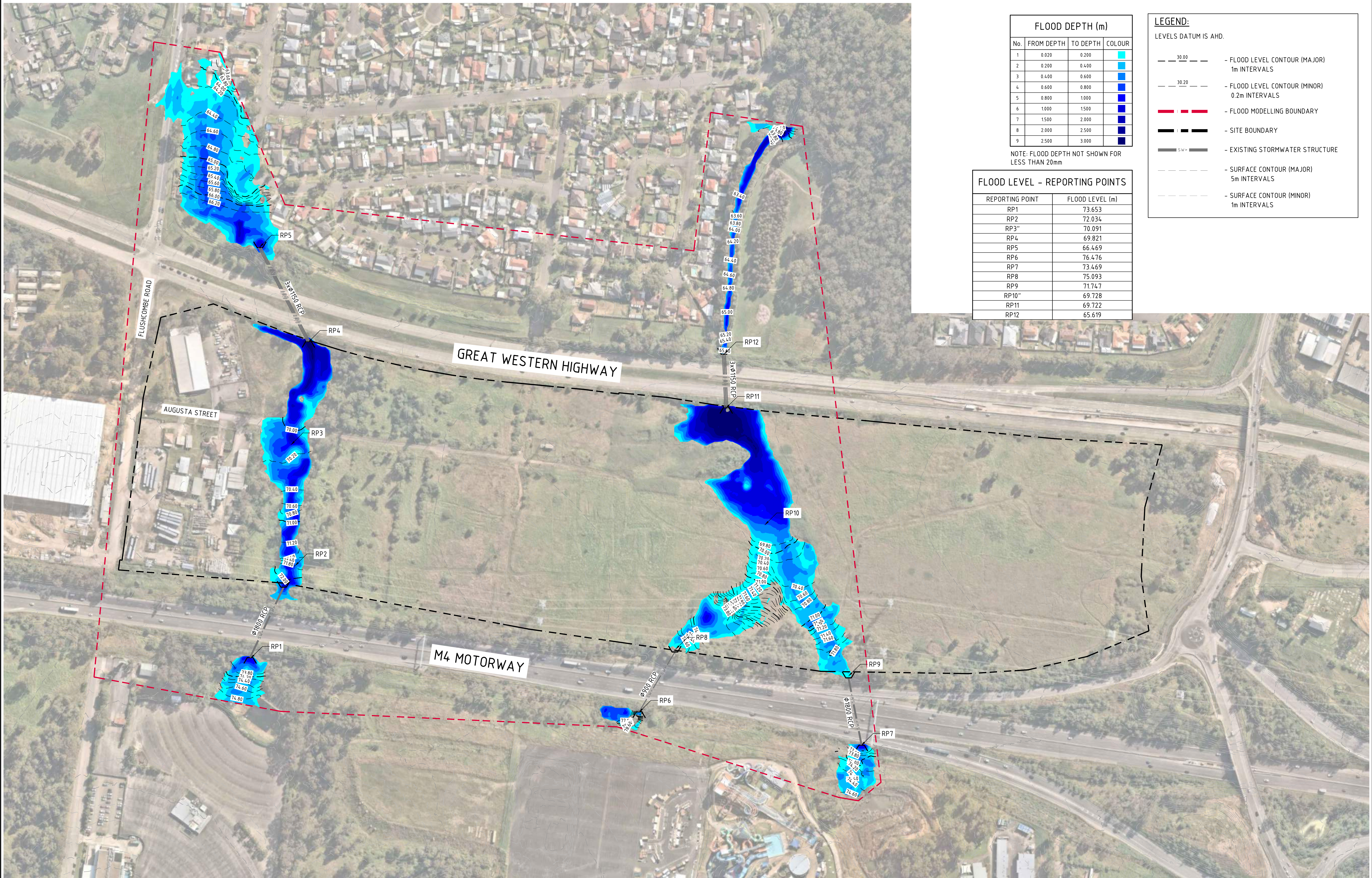
PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148					
DESIGNED LDV	DRAWN JB	DATE JUNE '22	CHECKED MW	SIZE B1	SCALE AS SHOWN
CAD REF: C013904.03-F023					



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DRAWING TITLE 5% AEP POST-DEVELOPMENT FLOOD VELOCITY		
DRAWING No C013904.03-F023		ISSUE D

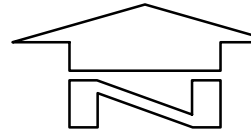


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	Cyan
2	0.200	0.400	Light Blue
3	0.400	0.600	Blue
4	0.600	0.800	Dark Blue
5	0.800	1.000	Very Dark Blue
6	1.000	1.500	Dark Blue
7	1.500	2.000	Very Dark Blue
8	2.000	2.500	Dark Blue
9	2.500	3.000	Very Dark Blue

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	73.653
RP2	72.034
RP3	70.091
RP4	69.821
RP5	66.469
RP6	76.476
RP7	73.469
RP8	75.093
RP9	71.747
RP10	69.728
RP11	69.722
RP12	65.619

LEGEND:	
LEVELS DATUM IS AHD.	
	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
	- FLOOD MODELLING BOUNDARY
	- SITE BOUNDARY
	- EXISTING STORMWATER STRUCTURE
	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
	- SURFACE CONTOUR (MINOR) 1m INTERVALS



0.5% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA		30.06.23	A
AMENDMENTS		DATE	ISSUE
		DATE	ISSUE

ARCHITECT
PACE
ARCHITECTS

CLIENT
LOGOS

PROJECT		PROPOSED WAREHOUSE DISTRIBUTION	
		AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148	
DESIGNED	LDV	DRAWN	JB
CHECKED	MW	DATE	JUNE '22
SIZE	B1	SCALE	AS SHOWN
CAD REF:	C013904.03-F030		

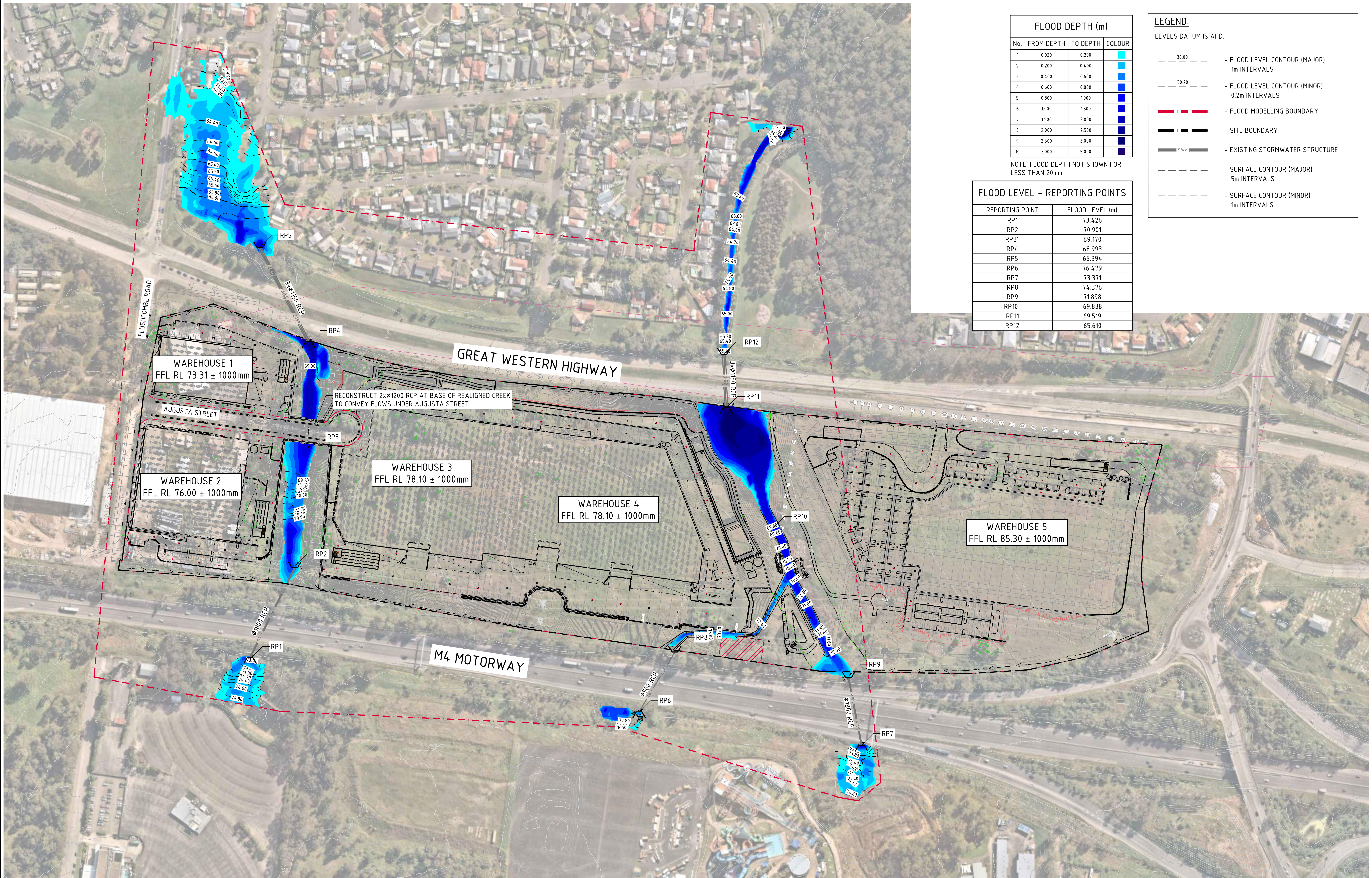


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DRAWING TITLE		0.5% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS	
DRAWING No		C013904.03-F030	
ISSUE		A	

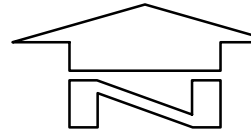


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	
2	0.200	0.400	
3	0.400	0.600	
4	0.600	0.800	
5	0.800	1.000	
6	1.000	1.500	
7	1.500	2.000	
8	2.000	2.500	
9	2.500	3.000	
10	3.000	5.000	

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	73.426
RP2	70.901
RP3"	69.170
RP4	68.993
RP5	66.394
RP6	76.479
RP7	73.371
RP8	74.376
RP9	71.898
RP10"	69.838
RP11	69.519
RP12	65.610

LEGEND:	
LEVELS DATUM IS AHD.	
— 30.00 —	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
— 30.20 —	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
— — —	- FLOOD MODELLING BOUNDARY
— — —	- SITE BOUNDARY
— SW —	- EXISTING STORMWATER STRUCTURE
— — —	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
— — —	- SURFACE CONTOUR (MINOR) 1m INTERVALS



0.5% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

REVISED BLACKTOWN CREEK	26.07.24	D
REVISED WEST CREEK	01.03.24	C
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	B
ISSUED FOR SSDA	30.06.23	A
AMENDMENTS	DATE	ISSUE



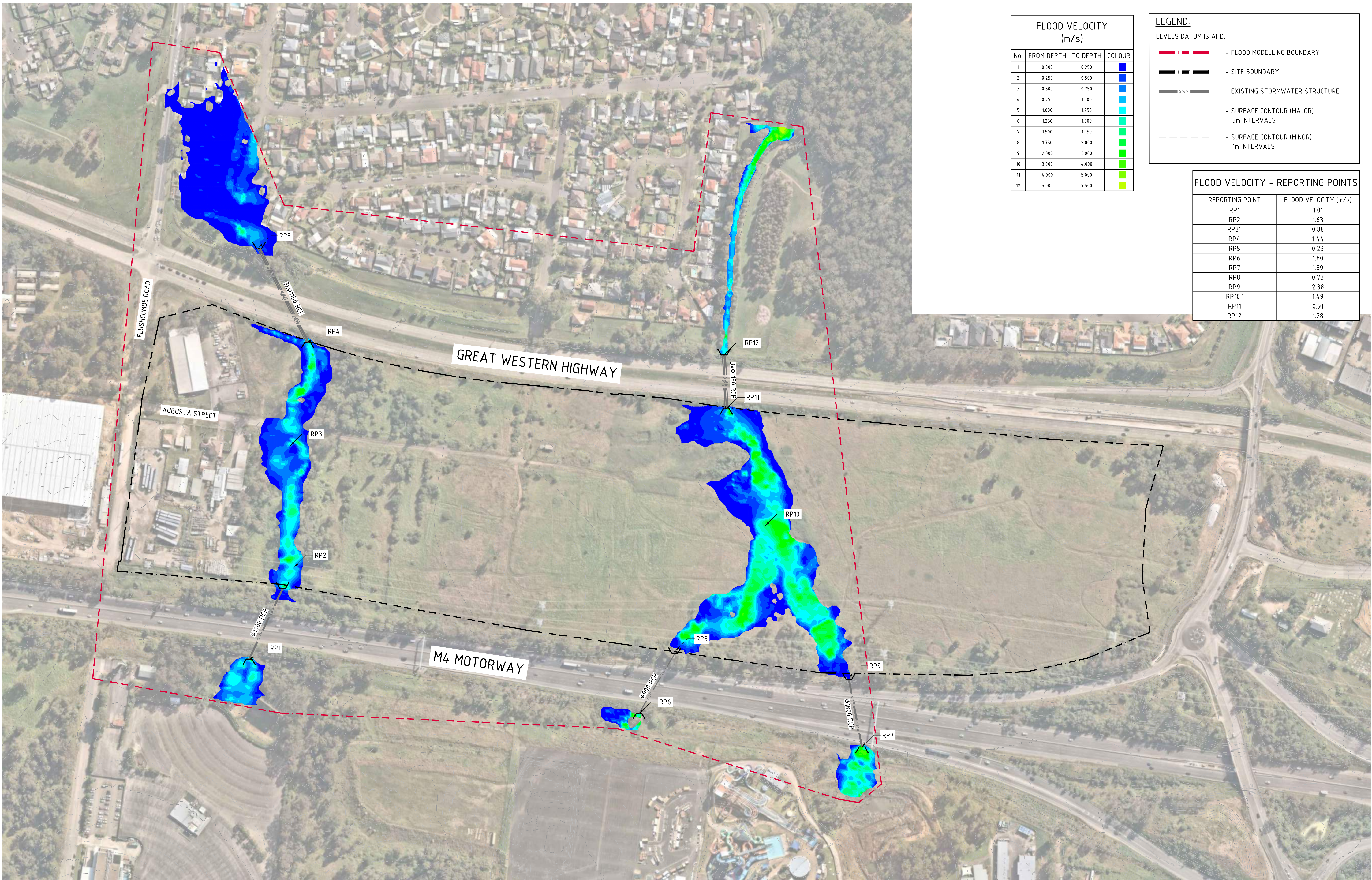
PROJECT		PROPOSED WAREHOUSE DISTRIBUTION	
AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148			
DESIGNED	LDV	DRAWN	JB
DATE	JUNE '22	CHECKED	MW
SIZE	B1	SCALE	AS SHOWN
CAD REF:	C013904.03-F031		



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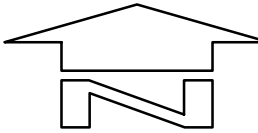
DRAWING TITLE		0.5% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS	
DRAWING No	C013904.03-F031		
ISSUE	D		



FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	1.01
RP2	1.63
RP3	0.88
RP4	1.44
RP5	0.23
RP6	1.80
RP7	1.89
RP8	0.73
RP9	2.38
RP10	1.49
RP11	0.91
RP12	1.28



0.5% AEP PRE-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA AMENDMENTS		30.06.23	A	AMENDMENTS		DATE	ISSUE

ARCHITECT
PACE
ARCHITECTS

CLIENT
LOGOS

PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148			
DESIGNED LDV	DRAWN JB	DATE JUNE '22	CHECKED MW
SIZE B1	SCALE AS SHOWN	CAD REF: C013904.03-F032	



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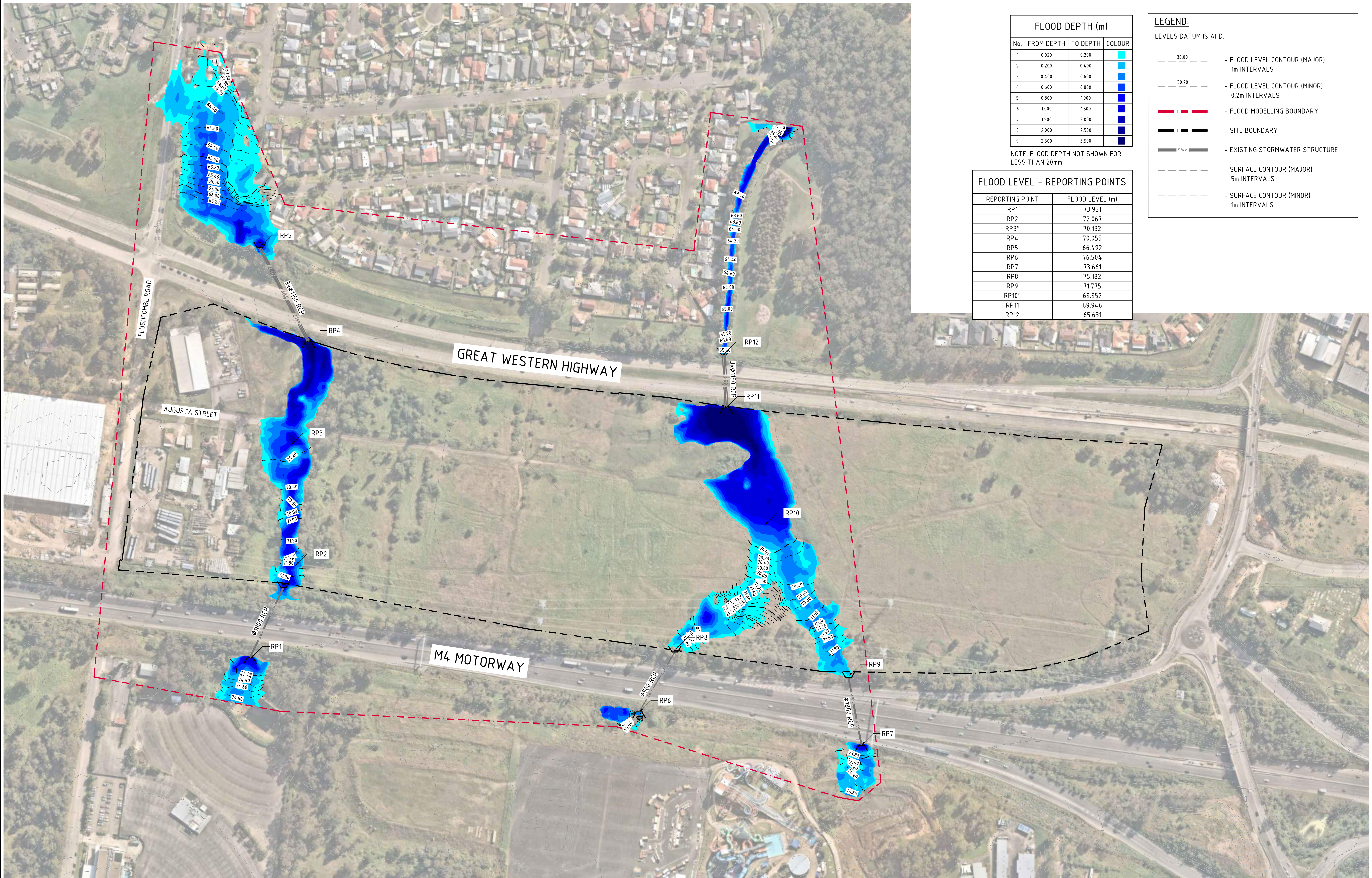
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DRAWING TITLE
0.5% AEP PRE-DEVELOPMENT FLOOD VELOCITY

DRAWING No
C013904.03-F032

ISSUE
A

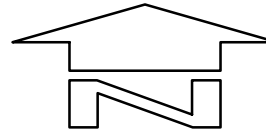


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	
2	0.200	0.400	
3	0.400	0.600	
4	0.600	0.800	
5	0.800	1.000	
6	1.000	1.500	
7	1.500	2.000	
8	2.000	2.500	
9	2.500	3.500	

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	73.951
RP2	72.067
RP3"	70.132
RP4	70.055
RP5	66.492
RP6	76.504
RP7	73.661
RP8	75.182
RP9	71.775
RP10"	69.952
RP11	69.946
RP12	65.631

LEGEND:	
LEVELS DATUM IS AHD.	
	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
	- FLOOD MODELLING BOUNDARY
	- SITE BOUNDARY
	- EXISTING STORMWATER STRUCTURE
	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
	- SURFACE CONTOUR (MINOR) 1m INTERVALS



0.2% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA		30.06.23	A	ARCHITECT	
AMENDMENTS		DATE	ISSUE	AMENDMENTS	
		DATE	ISSUE		



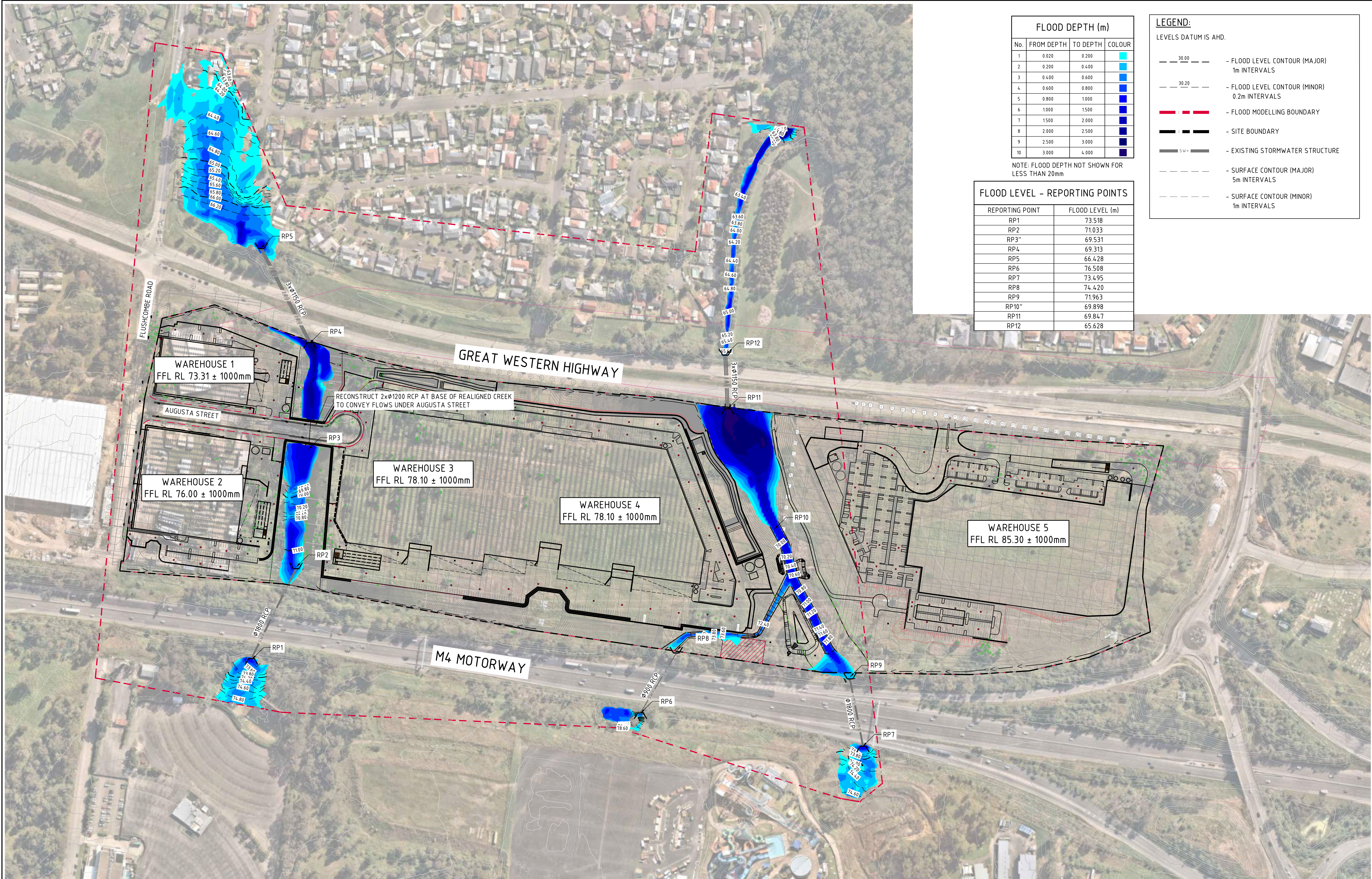
PROJECT		PROPOSED WAREHOUSE DISTRIBUTION	
		AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148	
DESIGNED	LDV	DRAWN	JB
CHECKED	MW	DATE	JUNE '22
SIZE	B1	SCALE	AS SHOWN
CAD REF:	C013904.03-F040		



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DRAWING TITLE		0.2% AEP PRE-DEVELOPMENT FLOOD LEVELS AND DEPTHS	
DRAWING No		C013904.03-F040	
ISSUE		B	

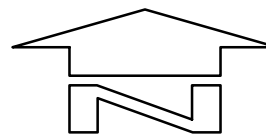


FLOOD DEPTH (m)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.020	0.200	
2	0.200	0.400	
3	0.400	0.600	
4	0.600	0.800	
5	0.800	1.000	
6	1.000	1.500	
7	1.500	2.000	
8	2.000	2.500	
9	2.500	3.000	
10	3.000	4.000	

NOTE: FLOOD DEPTH NOT SHOWN FOR LESS THAN 20mm

FLOOD LEVEL - REPORTING POINTS	
REPORTING POINT	FLOOD LEVEL (m)
RP1	73.518
RP2	71.033
RP3"	69.531
RP4	69.313
RP5	66.428
RP6	76.508
RP7	73.495
RP8	74.420
RP9	71.963
RP10"	69.898
RP11	69.847
RP12	65.628

LEGEND:	
LEVELS DATUM IS AHD.	
— 30.00 —	- FLOOD LEVEL CONTOUR (MAJOR) 1m INTERVALS
— 30.20 —	- FLOOD LEVEL CONTOUR (MINOR) 0.2m INTERVALS
— — —	- FLOOD MODELLING BOUNDARY
— — —	- SITE BOUNDARY
— — —	- EXISTING STORMWATER STRUCTURE
— — —	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
— — —	- SURFACE CONTOUR (MINOR) 1m INTERVALS

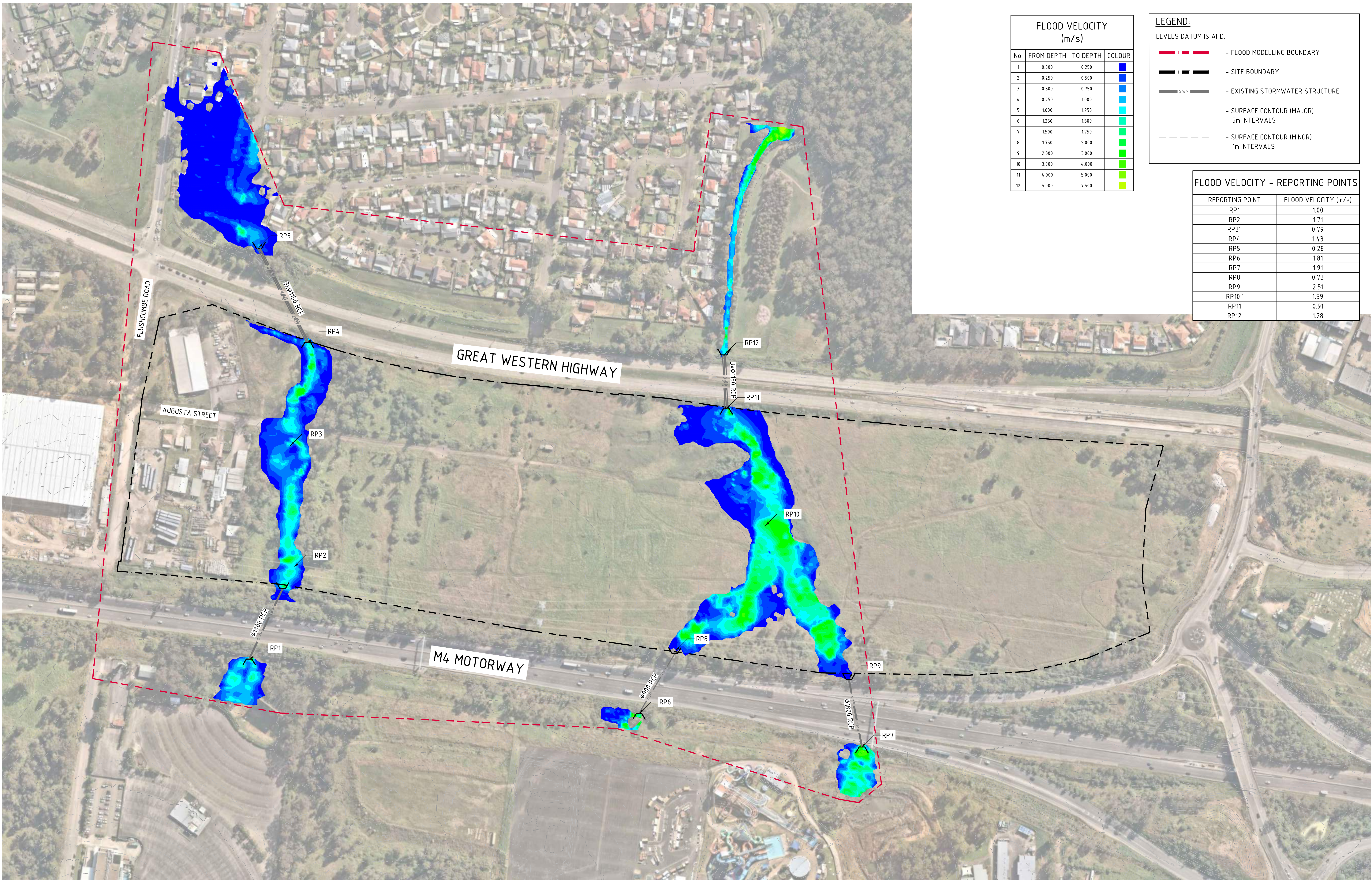


0.2% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

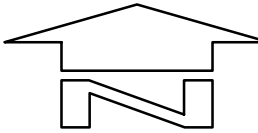
REVISED BLACKTOWN CREEK REVISED WEST CREEK CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED ISSUED FOR SSDA AMENDMENTS			26.07.24 01.03.24 10.07.23 30.06.23 DATE			D C B A ISSUE			ARCHITECT PACE ARCHITECTS			CLIENT LOGOS			PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148			CONSULT AUSTRALIA			Costin Roe Consulting Pty Ltd. ABN 50 003 696 446 PO Box N419 Sydney NSW 1220 Level 4, 8 Windmill Street, Millers Point NSW 2000 p: +61 2 9251 7699 e: mail@costinroe.com.au w: costinroe.com.au			CRC COSTIN ROE CONSULTING CIVIL & STRUCTURAL ENGINEERS			DRAWING TITLE 0.2% AEP POST-DEVELOPMENT FLOOD LEVELS AND DEPTHS DRAWING No C013904.03-F041 ISSUE D		
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FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

- LEGEND:**
LEVELS DATUM IS AHD.
- FLOOD MODELLING BOUNDARY
 - SITE BOUNDARY
 - EXISTING STORMWATER STRUCTURE
 - SURFACE CONTOUR (MAJOR) 5m INTERVALS
 - SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	1.00
RP2	1.71
RP3	0.79
RP4	1.43
RP5	0.28
RP6	1.81
RP7	1.91
RP8	0.73
RP9	2.51
RP10	1.59
RP11	0.91
RP12	1.28



0.2% AEP PRE-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

15m 0 15 30 45 60 75 90 105 120 135 150m
SCALE 1:1500 AT B1 SIZE SHEET

ISSUED FOR SSDA AMENDMENTS	30.06.23	A			
	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148					
DESIGNED LDV	DRAWN JB	DATE JUNE '22	CHECKED MW	SIZE B1	SCALE AS SHOWN



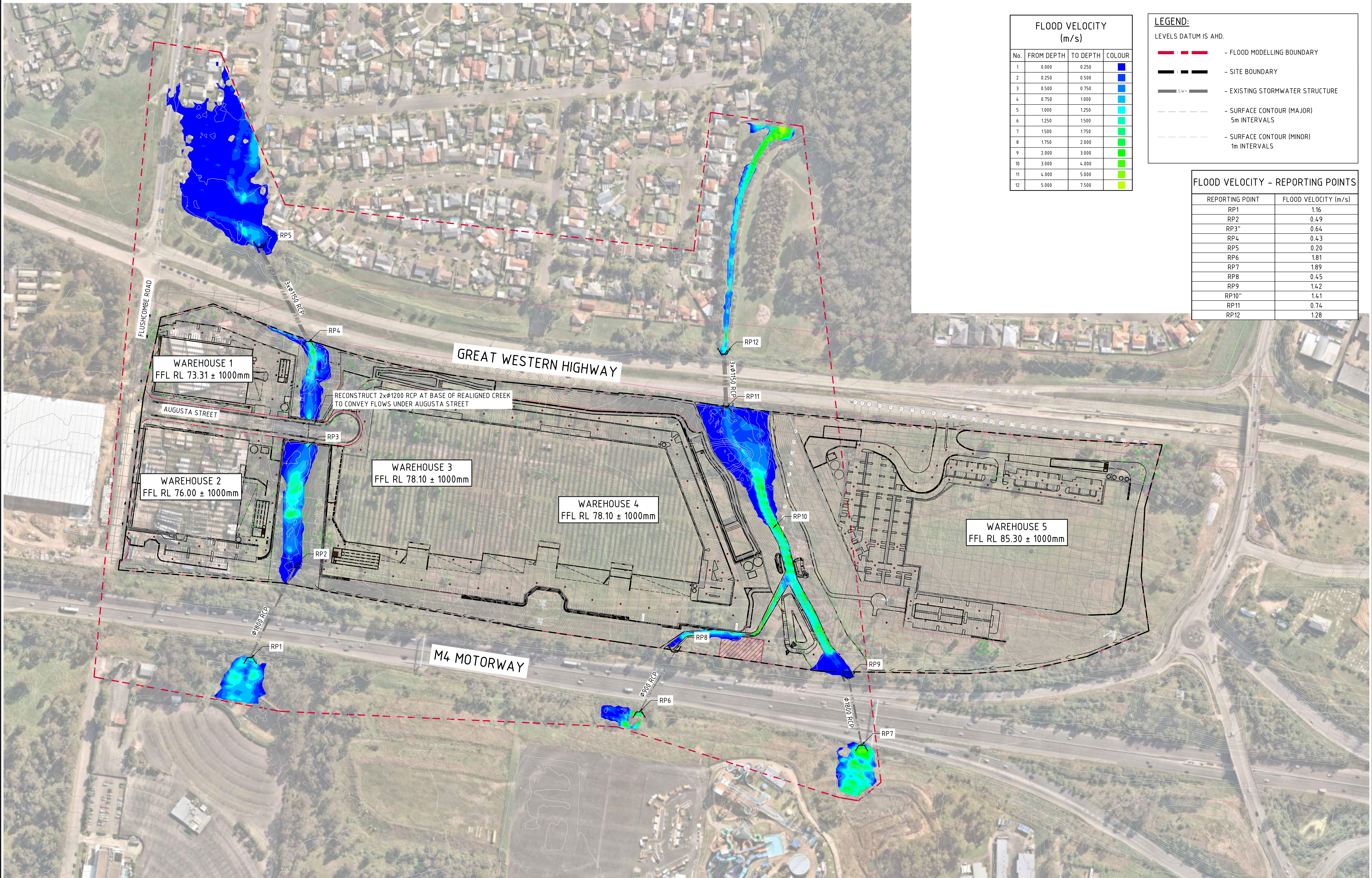
Costin Roe Consulting Pty Ltd.
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0.2% AEP PRE-DEVELOPMENT FLOOD VELOCITY

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C013904.03-F042

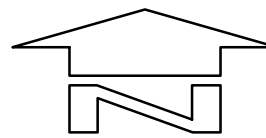
ISSUE
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FLOOD VELOCITY (m/s)			
No.	FROM DEPTH	TO DEPTH	COLOUR
1	0.000	0.250	Blue
2	0.250	0.500	Blue
3	0.500	0.750	Blue
4	0.750	1.000	Blue
5	1.000	1.250	Blue
6	1.250	1.500	Blue
7	1.500	1.750	Blue
8	1.750	2.000	Blue
9	2.000	3.000	Blue
10	3.000	4.000	Blue
11	4.000	5.000	Blue
12	5.000	7.500	Blue

LEGEND:	
LEVELS DATUM IS AHD.	
---	- FLOOD MODELLING BOUNDARY
---	- SITE BOUNDARY
---	- EXISTING STORMWATER STRUCTURE
---	- SURFACE CONTOUR (MAJOR) 5m INTERVALS
---	- SURFACE CONTOUR (MINOR) 1m INTERVALS

FLOOD VELOCITY - REPORTING POINTS	
REPORTING POINT	FLOOD VELOCITY (m/s)
RP1	1.16
RP2	0.49
RP3	0.64
RP4	0.43
RP5	0.20
RP6	1.81
RP7	1.89
RP8	0.45
RP9	1.42
RP10	1.41
RP11	0.74
RP12	1.28



0.2% AEP POST-DEVELOPMENT FLOOD VELOCITY
SCALE 1:1500

FOR DEVELOPMENT APPLICATION

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SCALE 1:1500 AT B1 SIZE SHEET

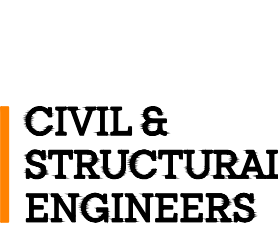
REVISED BLACKTOWN CREEK	26.07.24	D			
REVISED WEST CREEK	01.03.24	C			
CORRECTED WAREHOUSE 5'S NUMBER, AS CLOUDED	10.07.23	B			
ISSUED FOR SSDA	30.06.23	A			
AMENDMENTS	DATE	ISSUE	AMENDMENTS	DATE	ISSUE



PROJECT PROPOSED WAREHOUSE DISTRIBUTION AUGUSTA STREET, HUNTINGWOOD EAST, NSW 2148					
DESIGNED LDV	DRAWN JB	DATE JUNE '22	CHECKED MW	SIZE B1	SCALE AS SHOWN
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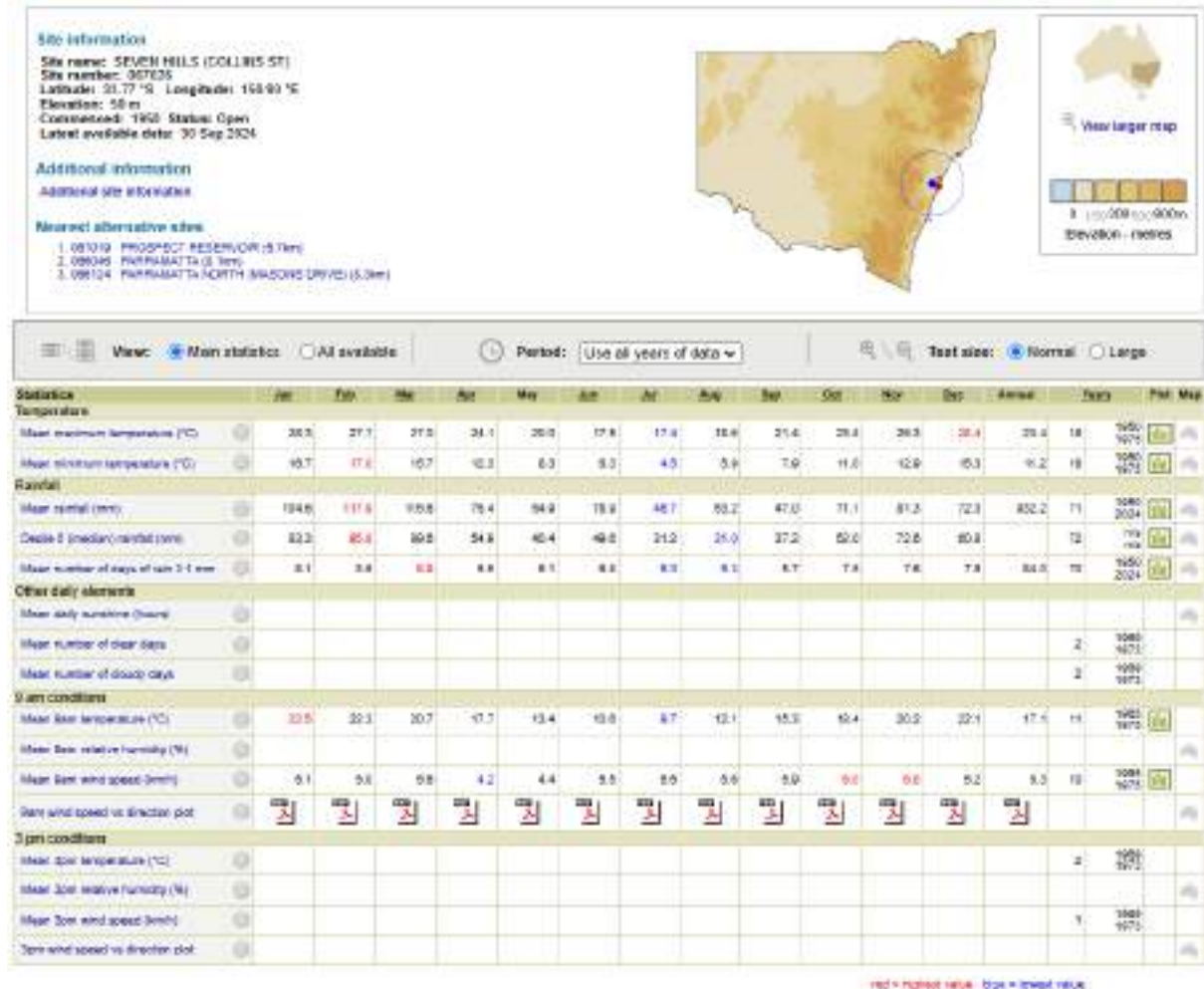


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DRAWING No C013904.03-F043	ISSUE D

APPENDIX B MONTHLY RAINFALL DATA & CLIMATE STATISTICS



**APPENDIX C
FLOOD EVACUTATION INDUSCTION & SIGN-OFF**

DRAFT

Project Position	Name	Signature	Revisions			
			<date>	<date>	<date>	<date>
Project Director						
Project Manager						
Site Manager / Flood Warden						
Site Supervisor						
Contract Manager						
Contract Administrator						
WHS /Environmental Manager						
Quality Coordinator						
Leading Hand						
Add others:						

APPENDIX D
BLACKTOWN CITY FLOOD EMERGENCY SUB PLAN

<https://www.ses.nsw.gov.au/media/6555/blacktown-city-flood-emergency-sub-plan-oct-2023.pdf>

DRAFT

BLACKTOWN CITY FLOOD EMERGENCY SUB PLAN

A Sub Plan of the Local Emergency Management Plan (EMPLAN)

Volume 1 of the Blacktown City Council Local Flood Plan

Endorsed by the Blacktown Local Emergency Management Committee

September 2023

AUTHORISATION

The Blacktown City Flood Emergency Sub Plan is a sub plan of the Blacktown City Local Emergency Management Plan (EMPLAN). It has been prepared in accordance with the provisions of the **State Emergency Service Act 1989 (NSW)** and is endorsed by the Local Emergency Management Committee in accordance with the provisions of the **State Emergency and Rescue Management Act 1989 (NSW)**.

Authorised

Signature(s):



NSW SES Local Commander

Print Name(s): Alan Rollinson

Date: September 2023

Endorsed

Signature:



Chair, Local Emergency Management Committee

Print Name: Surinder Aneja

Date: 18 October 2023

DISTRIBUTION LIST

Available for general use and distribution on the NSW State Emergency Service website www.ses.nsw.gov.au

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VERSION HISTORY

Version Number	Description	Date
	Blacktown Local Flood Plan	Nov 2010
	Blacktown Local Flood Plan	Feb 1993
1	Blacktown Local Flood Plan – Volume 1	Dec 2022
1.1	Blacktown Local Flood Plan – Volume 1 with AWS updates	August 2023

AMENDMENT LIST

Suggestions for amendments to this plan should be forwarded to:

Manager Planning and Engagement
NSW State Emergency Service
PO Box 6126, Wollongong NSW 2500
nswses.communityplanning@ses.nsw.gov.au

Amendments that have been entered in this plan are listed in the following table.

Amendment Number	Description	Update checked by	Date
01	Update to sections 5.4.1, 5.12 and 5.13 relating to flood warnings to reflect the change to the Australian Warning System	Savitha Balu	17.04.2023
02	Update of wording from 'BoM' to 'Bureau'	Savitha Balu	17.04.2023
03	Update to section 1.8.1b to include commitment of exercising plan every five years and within two years of the plan being reviewed	Savitha Balu	17.04.2023
04	Update of wording from 'DPIE' to 'DPE' to reflect change from Department of Planning, Industry and Environment to Department of Planning and Environment (5.14.4)	Savitha Balu	17.04.2023
05	References to Resilience NSW changed to NSW Reconstruction Authority	Savitha Balu	17.04.2023
06	Update of Section 2.1 to reflect latest advice on relevant declared dams, including dam break flooding and DEPs	Savitha Balu	17.04.2023
07	Update to Section 5.9.9a - insert in brackets (NSW Department of Primary Industries, supported by Local Land Services) and delete reference to wildlife.	Savitha Balu	17.04.2023
08	Standardised version numbers to reflect the FESP endorsed as Volume 1 of LFP is Version 1 and this update including above amendments is Version 1.1	Savitha Balu	17.04.2023
09	Standardised Tables in section 2.1 and general formatting	Savitha Balu	03.08.2023
10	Update in section 5.10 from State Rescue Board Land Rescue Policy to State Rescue Board NSW State Rescue Policy	Savitha Balu	03.09.2023

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1 OUTLINE AND SCOPE

1.1 PURPOSE

- 1.1.1 The purpose of this plan is to set out the multi-agency arrangements for the emergency management of flooding in Blacktown City Local Government Area (LGA). A brief description of the LGA flood threat can be found at Annex D.

1.2 AUTHORITY

- 1.2.1 This Plan is written and issued under the authority of the [State Emergency and Rescue Management Act 1989](#) (NSW) ('SERM Act'), the [State Emergency Service Act 1989](#) (NSW) ('SES Act') and the [NSW State Emergency Management Plan](#) (EMPLAN).
- 1.2.2 This plan is a sub plan to Blacktown City Council Local Emergency Management Plan (EMPLAN) and is endorsed by Blacktown Emergency Management Committee (LEMC).
- 1.2.3 This plan is also a sub plan to the Hawkesbury Nepean Flood Emergency Sub Plan.

1.3 ACTIVATION

- 1.3.1 This plan does not require activation. The arrangements set out in this plan are always active.
- 1.3.2 Blacktown City Council Emergency Management Plan (EMPLAN) is active at all times in anticipation of the need to coordinate support and resources requested by combat agencies, including the NSW State Emergency Service (NSW SES).

1.4 SCOPE

- 1.4.1 The area covered by this plan is Blacktown LGA. The principal towns, villages, rivers and creeks are shown in Appendix A.
- 1.4.2 The council area is in the NSW SES Metro Zone and for emergency management purposes is part of the North West Metro Emergency Management Region.
- 1.4.3 The Plan sets out Blacktown City Council level emergency management arrangements for prevention, preparation, response and initial recovery for flooding in Blacktown City LGA. Hazard and Risk information can be found in Volume 2 of this document, and NSW SES Response Arrangements can be found in Volume 3.
- 1.4.4 In this plan a flood is defined as a relatively high water level which overtops the natural or artificial banks in any part of a stream, river, estuary, lake or dam, and/or local overland flooding associated with drainage before entering a watercourse, and/or coastal inundation resulting from super-elevated sea levels and/or waves (including tsunami) overtopping coastline defences.
- 1.4.5 The arrangements for the emergency management of tsunami are dealt with in the NSW State Tsunami Emergency Sub Plan.

- 1.4.6 This plan outlines the local level arrangements for the management of downstream consequences of dam failure, however it does not cover the impact of flooding of an underground mine by inrush or other cause, which should be covered by the Mine Sub Plan for the respective mine.

1.5 GOALS

- 1.5.1 The primary goals for flood emergency management in NSW are:
- a. Protection and preservation of life;
 - b. Establishment and operation of flood warning systems;
 - c. Issuing of community information and community warnings;
 - d. Coordination of evacuation and welfare of affected communities;
 - e. Protection of critical infrastructure and community assets essential to community survival during and emergency incident;
 - f. Protection of residential property;
 - g. Protection of assets and infrastructure that support individual and community financial sustainability and aid assisting a community to recover from an incident; and
 - h. Protection of the environment and conservation values considering the cultural, biodiversity and social values of the environment.

1.6 KEY PRINCIPLES

- 1.6.1 The protection and preservation of human life (including the lives of responders and the community) is the highest priority.
- 1.6.2 Evacuation is the primary response strategy for people impacted by flooding.

1.7 ROLES AND RESPONSIBILITIES

- 1.7.1 General responsibilities of emergency service organisations and functional areas are set out in the NSW State EMPLAN.
- 1.7.2 The roles and responsibilities of agencies in flood are described in Appendix A to the State Flood Plan 2018.
- 1.7.3 Specific roles and responsibilities for agencies, functional areas and organisations in relation to flooding within Blacktown City LGA are detailed within this Plan and Appendix B.
- 1.7.4 Any agency with agreed responsibilities in this Plan that are temporarily, or no longer able to fulfil their responsibilities must as soon as possible notify the:
- a. NSW SES Incident Controller (for local level responsibilities during response operations);
 - b. NSW SES Zone Commander (for regional level responsibilities outside of response operations); and
 - c. NSW SES Local Commander (for local level responsibilities outside of response operations).

1.8 PLAN MAINTENANCE AND REVIEW

1.8.1 The NSW SES will maintain the currency of this plan by:

- a. Ensuring that all supporting emergency services and functional areas, organisations and officers mentioned in it are aware of their roles and responsibilities;
- b. Conduct a minimum of one exercise every five years or within two years of the plan being reviewed;
- c. Reviewing the contents of the plan:
 - When there are changes which alter agreed plan arrangements;
 - When changes to land use strategic plans and policies increase the population at risk;
 - After a flood including from after action reviews, reports or inquiries; and
 - As determined by the NSW SES Commissioner.
- d. The plan is to be reviewed no less frequently than every five years or after a significant flood event.

1.9 SUPPLEMENTARY DOCUMENTS

1.9.1 Supplementary material published in previous versions of the Local Flood Plan is now maintained on the NSW SES website at <https://www.ses.nsw.gov.au/about-us/flood-storm-and-tsunami-plans/> including:

- a. [Flood Plan Glossary](#);
- b. [NSW SES Resupply Flowchart](#).

2 OVERVIEW OF NSW FLOOD HAZARD AND RISK

2.1 THE FLOOD THREAT

2.1.1 The NSW SES maintains information on the nature of flooding and effects of flooding on the community in the Blacktown City LGA. This is outlined in Volume 2 of the Local Flood Plan – Hazard and Risk in Blacktown City.

2.1.2 [Declared dams](#) that are relevant to local communities within the Blacktown City LGA are listed in tables below.

- a. Those declared dams that are located within the LGA will be addressed in Volume 2 of this Local Flood Plan as required by their potential to impact on communities within Blacktown LGA.

While no such dams in neighbouring LGAs have potential for such local impacts, two of Blacktown City Council's three detention basin could impact on communities in Cumberland LGA.

Also, though Prospect Reservoir is located within Blacktown LGA, as a major reservoir with the potential for flooding across multiple LGAs, dam failure is addressed under the regional Flood Plan for the Georges and Woronora Rivers.

Dam Name	Owner	Location
Clunies Ross St (DEP) Retarding Basin	Blacktown City Council	Prospect
Fox Hills Basin	Blacktown City Council	Toongabbie
Pied Piper Basin	Blacktown City Council	Seven Hills
Rouse Hill Basin 5	Sydney Water	Stanhope Gardens
Rouse Hill Basin 13	Sydney Water	Glenwood
Prospect Reservoir	WaterNSW	Prospect

- b. Larger dam storages that may impact on local Blacktown communities amongst multiple LGAs will be addressed as required in the relevant broader regional Flood Plan for the Hawkesbury Nepean Valley.

Dam Name	Owner	LGA
Cataract Dam	Water NSW	Wollondilly
Cordeaux Dam	Water NSW	Wollongong
Avon Dam	Water NSW	Wingecarribee
Nepean Dam	Water NSW	Wingecarribee
Warragamba Dam	Water NSW	Wollondilly

3 PREVENTION/MITIGATION

3.1 INTRODUCTION

- 3.1.1 The Floodplain Development Manual outlines the NSW Government's Flood Prone Lands Policy which details the framework for managing flood prone land in New South Wales. Incorporation of floodplain risk management into land use planning is one of the key means to limit the exposure to flood risks to our communities and help build long term resilience to future flood events.

3.2 LAND USE PLANNING

- 3.2.1 **Strategy:** Work with landuse planning and consent authorities to advocate that the risks arising from floods are considered so as to prevent the creation of intolerable impacts of these hazards on the community.
- 3.2.2 **Actions:**
 - a. NSW SES will provide strategic input about land use planning matters which have or will create significant flood risk;
 - b. NSW SES will provide responses to land use planning proposal referrals that have or will create significant flood risk.

3.3 FLOODPLAIN RISK MANAGEMENT

3.3.1 **Strategy:** NSW SES advocates for the recognition of emergency management considerations through participation in the floodplain risk management program.

3.3.2 **Actions:**

- a. NSW SES will provide coordinated and consistent emergency management advice to councils and other agencies in relation to the management of land that is subject to flooding or coastal inundation; and
- b. NSW SES will provide advice, support and technical resources for NSW SES representatives to contribute effectively to local Floodplain Management Committees.

4 PREPARATION

4.1 INTRODUCTION

4.1.1 Preparation includes arrangements or plans to deal with an emergency or the effects of an emergency.

4.2 FLOOD EMERGENCY PLANNING

4.2.1 **Strategy:** NSW SES develop, review and maintain Flood Sub Plans

4.2.2 **Actions:**

- a. Develop and review this NSW SES Local Flood Plan as required. Local Flood Plans outline the specific arrangements for management of flood events within an LGA, and may include cross boundary arrangements; and
- b. Review plans as per [Section 1.8](#).

4.2.3 Local EMPLAN Consequence Management Guides for flood are not required for communities covered by NSW SES Local Flood Plans.

4.3 FLOOD INTELLIGENCE SYSTEMS

4.3.1 **Strategy:** NSW SES develop and maintain a flood intelligence system to identify flood behaviour, its impact on the community and required response actions.

4.3.2 **Actions:**

- a. Gather and assess flood information for the full range of flood types and severities;
- b. Collect, collate and assess information on the characteristics of communities at risk and the potential effects of flooding on communities at risk; and
- c. Share flood intelligence information with supporting agencies.

4.4 DEVELOPMENT OF WARNING SYSTEMS

4.4.1 **Strategy:** Develop, maintain and prepare systems for the provision of flood warnings and associated warning services.

4.4.2 **Actions:**

- a. All levels of government work in partnership to develop and maintain flood warning infrastructure;
- b. NSW SES maintains a list of the requirements for flood warnings for flood gauges in NSW (including flood classifications, warning times required and key statistics) and can be found in the supplementary document to the NSW State Flood Plan (see Section 1.9). Gauges of relevance within Blacktown City LGA are also listed in Volume 3 of this Plan;
- c. The NSW SES will recommend new warning services and changes to warning alert levels for gauges to the NSW Flood Warning Consultative Committee.
- d. The State Government, in partnership with Local Government, is responsible for developing and maintaining flash flood warning systems for local catchments where required;
- e. Dam Owners will provide Dam Failure Warning Systems (where required) and consult NSW SES on alert levels and messaging. Alert level definitions are listed in Dam Safety Emergency Plans;
- f. NSW SES will maintain a dedicated dam failure hotline and procedures to ensure priority dissemination of dam failure warnings.
- g. NSW SES will develop and maintain warning and flood information products by:
 - Utilising flood intelligence data;
 - Developing pre-written warning and flood information products;
 - Continuously reviewing warning and flood information products; and
 - Consulting with affected communities, key stakeholders, Dam Safety NSW and the NSW Flood Warning Consultative Committee; and maintain Operational Readiness.

4.4.3 **Strategy:** Ensure NSW SES, supporting agencies, functional areas and the community are prepared and familiar with the strategies and arrangements within the Flood Sub-Plan and supporting documents.

4.4.4 **Actions:**

- a. NSW SES will consult stakeholders throughout the development of plans;
- b. NSW SES will inform stakeholders of content changes after revisions;
- c. NSW SES will ensure their facilities and resources are maintained and operationally ready;
- d. NSW SES will train personnel for their expected flood operation roles; and
- e. NSW SES will regularly brief stakeholders on the exercise arrangements contained in the Flood Sub Plan.

4.5 **COMMUNITY RESILIENCE TO FLOODING**

4.5.1 **Strategy:** NSW SES provides and maintains a flexible volunteer workforce to support community resilience.

4.5.2 **Actions:**

- a. Ensure ongoing recruitment and training of a diverse range of volunteers.
- b. Ensure pre-planning to facilitate the management of spontaneous volunteers and community members during a flood.

4.5.3 **Strategy:** NSW SES works with individuals, communities, businesses and government agencies to build flood resilience.

4.5.4 **Actions:**

- a. Work with communities to understand and manage the risks associated with floods, including providing business continuity guidance (NSW SES Business Floodsafe), family preparedness (NSW SES Home Floodsafe) and other engagement strategies.
- b. NSW SES will collate, assess and disseminate flood information to the community.
- c. Collaborate with individuals, businesses, government agencies and communities when developing flood intelligence, preparedness and response information.
- d. Plan for floods collaboratively with communities through community and stakeholder participation and engagement.

5 RESPONSE

5.1 INTRODUCTION

5.1.1 Flood response operations will begin:

- a. On receipt of a Bureau of Meteorology (Bureau) Severe Weather Warning or Thunderstorm Warning that includes heavy rain or storm surge; or
- b. On the receipt of a Bureau Flood Watch or Flood Warning; or
- c. On receipt warnings for flash flood; or
- d. On receipt of a dam failure alert; or
- e. When other evidence leads to an expectation of flooding.

5.2 INCIDENT MANAGEMENT ARRANGEMENTS

5.2.1 **Strategy:** Maintain effective control of flood operations across New South Wales.

5.2.2 **Actions:**

- a. The NSW SES uses the Australasian Inter-service Incident Management System (AIIMS) to manage the flood response;
- b. Control of flood response will be at the lowest effective level and may be scaled to suit the incident;
- c. The NSW SES State Controller will appoint Incident Controllers and establish Incident Control Centres (see NSW SES facilities on map in Appendix A);

- d. For riverine flood operations on the Hawkesbury Nepean River system the arrangements in the Hawkesbury Nepean Flood Emergency Sub Plan (HNFESP) will apply. The arrangements in this plan will be subject to that Sub Plan.
- e. For local flood operations the Incident Controller, in consultation with participating supporting emergency services and Functional Areas will determine the appropriate breakdown of an incident area into Divisions and/or Sectors in accordance with the principles of AIIMS as well as the predefined Divisions and Sectors outlined within Volume 3 of this Plan.

5.2.3 **Strategy:** Maintain Incident Control Centre(s).

5.2.4 **Actions:**

- a. NSW SES will operate Incident Control Centre(s) as required;
- b. The NSW SES Incident Control Centre(s) will:
 - Control resources from NSW SES and coordinate resources of supporting emergency services and functional areas;
 - Manage Request for Assistance (RFA) tasking and ensure they are actioned in a timely manner;
 - Undertake response planning and determine future resourcing requirements; and
 - Coordinate information flow, including warnings, public information and social media.

5.2.5 **Strategy:** Provide effective liaison between the NSW SES and supporting agencies or functional areas in accordance with Local EMPLAN.

5.2.6 **Actions:**

- a. Supporting emergency services and Functional Areas should provide Liaison Officers to NSW SES Incident Control Centre(s) and/or Emergency Operation Centres as required; and
- b. NSW SES will provide Liaison Officer(s) to Emergency Operations Centres as required.

5.2.7 **Strategy:** Coordinate resources and logistics support to ensure operational effectiveness.

5.2.8 **Actions:**

- a. The NSW SES Incident Controller will notify agencies of potential access issues between locations, for the consideration of pre-deploying of resources;
- b. The NSW SES may request resources and logistics support directly from a supporting emergency service or Functional Area.
- c. Wherever possible, supporting organisations are to provide their own logistic support in consultation with NSW SES where appropriate.
- d. The NSW SES Incident Controller will control air support operations and may utilise supporting agencies in the management of aircraft.

5.3 USE OF INFORMATION AND COLLECTION OF INTELLIGENCE

5.3.1 **Strategy:** Ensure flood information is effectively communicated and collected during a flood.

5.3.2 **Actions:**

- a. Information relating to the consequences of flooding, response strategies, situational awareness and operational updates will be distributed by NSW SES to supporting emergency services and Functional Areas listed under this Plan;
- b. All supporting emergency services and Functional Areas will accurately record and report information relevant to their activities and any real time flood information (including road closure information) to the NSW SES Incident Controller. This may be in the form of a combined Emergency Operations Centre (EOC) report, or direct from agencies where an EOC has not been established;
- c. The NSW SES may establish and operate a Joint Intelligence Unit to coordinate the collection, collation, interpretation, mapping, actioning and dissemination of information; and
- d. Reconnaissance, mapping, damage assessments, intelligence validation and post flood evaluation will be coordinated by NSW SES. This may occur post impact and continue into the recovery phase.

5.3.3 **Strategy:** Ensure flood intelligence is incorporated into operational decision-making.

5.3.4 **Action:** The NSW SES will use flood intelligence and official forecasts and warnings, to undertake an assessment of the predicted impact of a flood and to inform operational decision-making.

5.4 PROVISION OF INFORMATION AND WARNINGS TO THE COMMUNITY

5.4.1 **Strategy:** Timely and effective warnings are distributed to the community.

5.4.2 **Actions:**

- a. The Bureau issues public weather and flood warning products before and during a flood. These may include:
 - Severe Thunderstorm Warnings with reference to heavy rainfall
 - Regional Severe Thunderstorm Warnings with reference to heavy rainfall
 - Detailed Severe Thunderstorm Warnings (for Sydney / Newcastle / Wollongong) with reference to heavy rainfall,
 - Severe Weather Warnings with reference to heavy rainfall and/or storm surge,
 - Flood Watches, and
 - Flood Warnings.
- b. Dam Owners will utilise Dam Failure Warning Systems to provide warnings and information to NSW SES and communities (where appropriate).

- c. NSW SES Incident Controllers will issue the following NSW SES Flood Warnings aligning to the Australian Warning System:
 - Advice;
 - Watch and Act; and
 - Emergency Warning;
- d. NSW SES will contact the Bureau of Meteorology to discuss the development of flood warnings as required.
- e. NSW SES will provide alerts and deliver flood information to affected communities using a combination of the following methods:
 - Mobile and fixed public address systems;
 - Two-way radio;
 - Emergency Alert (SMS and voice message alerting system);
 - Telecommunications (including Auto dial systems);
 - Facsimile
 - Standard Emergency Warning Signal;
 - Doorknocking;
 - Mobile and fixed sirens;
 - Variable message signs;
 - Community notices in identified hubs;
 - Distribution through established community liaison networks, partnerships and relationships; and
 - NSW SES social media and website.
- f. NSW SES may request supporting agencies redistribute NSW SES alerts and information, including through the provision of doorknocking teams;
- g. Road closure information will be provided to the community through the following agencies/methods:
 - Local Government Council websites; and
 - Transport for NSW 'Live Traffic' website: www.livetraffic.com or 'Transport InfoLine': 131 500.
- h. The Public Information and Inquiry Centre will be established by the NSW Police Force where required to provide information regarding evacuees and emergency information. Contact details will be broadcast once the centre is established.
- i. The Disaster Welfare Assistance Line will be established by Disaster Welfare Services where required to provide information on welfare services and assistance. Assistance line contact details will be broadcast once Disaster Welfare Services commence.

5.5 PROTECTION OF PROPERTY

5.5.1 **Strategy:** Coordinate the protection of property from destruction or damage arising from floods.

5.5.2 **Action:** NSW SES, supporting agencies, and community volunteers will assist the community (where resources are available, feasible and safe to do so) in:

- a. The protection of properties through flood protection systems (e.g. sandbagging) to minimise entry of water into buildings; and
- b. The lifting or moving of household furniture and commercial stock/equipment.

5.6 ROAD AND TRAFFIC CONTROL

5.6.1 **Strategy:** Coordinate the closing and re-opening of flood affected roads.

5.6.2 **Actions:**

- a. Blacktown City Council will coordinate the closure and reopening of council managed roads;
- b. The Transport Management Centre (TMC) in coordination with Transport for NSW will coordinate the closure and reopening of the state road network;
- c. The NSW Police Force may close and re-open roads but will normally only do so (if Blacktown City Council or Transport for NSW have not already acted) and if public safety requires such action;
- d. NSW SES will assist with erecting road closure signs and barriers when time and resources permit.

5.6.3 **Strategy:** Coordinate traffic control measures in flood affected areas.

5.6.4 **Actions:**

- a. The NSW SES Incident Controller may direct the imposition of traffic control measures into flood affected areas in accordance with the provisions of the *State Emergency Service Act, 1989* and the *State Emergency Rescue Management Act, 1989*.
- b. The NSW SES Incident Controller may request the Local Emergency Operations Controller provide suitable personnel to assist with traffic coordination.

5.7 PROTECTION OF ESSENTIAL SERVICES

5.7.1 Arrangements for the protection of local assets are outlined in Volume 3 of this NSW SES local Flood Plan. In addition, Local and Region EMPLAN's contain infrastructure inventories.

5.7.2 **Strategy:** Minimise disruption to the community by ensuring protection of infrastructure and supply of essential energy and utility services.

5.7.3 **Actions:**

- a. Transport Services Functional Area will keep the NSW SES informed of the status of transport infrastructure;

- b. The Energy and Utility Services Functional Area is to coordinate the assessment and restoration of essential energy and utility services (not including telecommunications);
- c. The Telecommunications Services Functional Area is to coordinate the assessment and restoration of telecommunications and the Government Radio Network;
- d. The Engineering Services Functional Area is to coordinate the assessment and restoration of critical public buildings for example hospitals; and
- e. Functional Areas will keep the NSW SES informed of the status of utilities and infrastructure.

5.8 EVACUATION

5.8.1 Evacuation is the NSW SES's primary response strategy for managing the population at risk of flooding.

5.8.2 Community specific evacuation arrangements are located in Volume 3 of this Plan.

5.8.3 **Strategy:** Conduct planning to ensure all evacuation constraints are considered.

5.8.4 **Actions:**

- a. Evacuations will take place when there is a risk to public safety. Circumstances may include:
 - Evacuation of people when their homes or businesses are likely to flood;
 - Evacuation of people who are unsuited to living in isolated circumstances, due to flood water closing access; and
 - Evacuation of people where essential energy and/or utility services are likely to fail or where buildings have been or may be made uninhabitable; and
- b. The NSW SES will consider the following in evacuation decisions:
 - Duration of evacuation;
 - Characteristics of the community;
 - Numbers requiring evacuation;
 - Availability of evacuation routes and transport;
 - Time available for evacuation;
 - Evacuee management requirements; and
 - Resources and delivery of evacuation information.
- c. NSW SES Incident Controllers, and flood planners will carefully consider the risks involved in conducting evacuations;
- d. All evacuation decisions will be made as per the NSW SES Communication and Dissemination of Evacuation Decisions Standard Operating Procedure and

Evacuation operations are to be consistent with the NSW Evacuation Management Guidelines;

- e. The NSW Police Force will coordinate the provision of overall security for evacuated areas.

5.8.5 **Strategy:** Evacuate people pre-emptively from dangerous or potentially dangerous places and or locations created by the flood hazard to safe locations away from the hazard.

5.8.6 **Actions:**

- a. NSW SES will control and coordinate the evacuation of affected communities;
- b. The NSW SES Incident Controller will warn communities to prepare for a possible evacuation, where circumstances allow such lead time;
- c. The NSW SES Incident Controller will order any necessary evacuations and provide information to the community about when and how to evacuate;
- d. Support to evacuation operations may be requested from other emergency services and supporting agencies using arrangements in the local EMPLAN and supporting plans;
- e. Health Services Functional Area will coordinate the evacuation of hospitals, health centres and aged care facilities (including nursing homes) in consultation with the NSW SES and Welfare Services.
- f. School administration offices (Department of Education, Catholic Education Office and Private Schools) will coordinate the evacuation of schools in consultation with the NSW SES and Welfare Services, if not already closed.
- g. Caravan Park proprietors will inform the NSW SES Incident Controller when caravan park evacuations have been completed.
- h. People who are reluctant or refuse to comply with any Evacuation Order will be referred to the NSW Police Force.

5.9 EVACUEE MANAGEMENT AND WELFARE

5.9.1 Research and experience in flood operations shows that most evacuees go to family, friends and commercial accommodation outside the impact area.

5.9.2 **Strategy:** Maintain the welfare of communities and individuals affected by the impact of a flood.

5.9.3 **Actions:**

- a. NSW SES will provide initial welfare for evacuees where required but will hand the responsibility over to the Welfare Services Functional Area as soon as possible. In these cases, the NSW SES will brief the Welfare Services Functional Area at the earliest opportunity regarding the level of assistance required;
- b. Potential Evacuation Centres are detailed in:
 - The Hawkesbury Nepean Flood Emergency Sub Plan - for Hawkesbury Nepean riverine flooding
 - Volume 3 of this Local Flood Plan – for local flooding

- Local EMPLAN – some of these evacuation centres are located within the floodplain
 - c. Welfare Services Functional Area will manage evacuation centres for affected residents and travellers in accordance with the Welfare Services Functional Area Supporting Plan;
 - d. The Department of Education will manage the safety of students directly affected by flooding and will work with the NSW SES in the temporary closure of schools and will coordinate with NSW SES Transport and Welfare Services in the management of school evacuees.
 - e. Disaster Victim Registration will be coordinated by the NSW Police Force with the Australian Red Cross managing the Register, Find and Re-unite Program;
 - f. NSW SES will provide details of all residents assisted in evacuations to the Welfare Services Functional Area as early as possible;
 - g. Where the expected remaining number of evacuees and the duration of evacuation is assessed to be beyond the capability and capacity of the established evacuation centre arrangements the SEOCON may establish Major Evacuation Centres or Mass Care facilities; and
 - h. The decision to establish Major Evacuation Centres or Mass Care Facilities will be made by the NSW SES and SEOCON in consultation with members of the State Emergency Management Committee.
- 5.9.4 **Strategy:** Coordinate available and accessible health services for flood affected communities.
- 5.9.5 **Action:** The provision of environmental health advice, assessment of public health risks and coordination of immediate mental health support will be provided by Health Services Functional Area.
- 5.9.6 **Strategy:** Coordinate maintenance of food supplies for flood affected communities.
- 5.9.7 **Actions:** All matters relating to the primary production, manufacturing, processing and handling of all food from primary industries to retail, inclusive of all restaurants, food services and catering businesses should be referred to the NSW Food Authority through the Agriculture and Animal Services Functional Area.
- 5.9.8 **Strategy:** Maintain the welfare of animals impacted by a flood.
- 5.9.9 **Actions:**
- a. Agriculture and Animal Services Functional Area (NSW Department of Primary Industries, supported by Local Land Services) will coordinate the welfare of livestock, pets and companion animals including support to primary producers, animal holding establishments and community members; and
 - b. Agriculture and Animal Services Functional Area role will assist with evacuation, emergency care of animals and assessment, humane destruction and disposal of affected animals, and supply of emergency fodder, water and aerial support where necessary.

5.10 FLOOD RESCUE

5.10.1 **Strategy:** Control and coordinate flood rescue of people and domestic animals.

5.10.2 **Actions:**

- a. NSW SES will perform flood rescue, where training and equipment is suitable and where a risk assessment has indicated that the risk to rescuers is acceptable;
- b. Flood rescue operations will be conducted in accordance with the State Rescue Board NSW State Rescue Policy which sets out the framework, governance, responsibilities and requirements for the management and conduct of flood rescue in NSW;
- c. NSW SES may request other supporting emergency services to undertake flood rescues on behalf of the NSW SES. Agencies must be authorised/accredited to undertake flood rescue operations in accordance with State Rescue Board requirements, as prescribed by NSW SES. Supporting emergency services must supply information regarding rescues performed to the NSW SES. Notification arrangements with NSW Police Force are outlined in the State Rescue Board NSW State Rescue Policy; and
- d. Rescue agencies will conduct rescue of domestic small and large animals as per the State Rescue Board NSW State Rescue Policy (and may include Large Animal Rescue of family horses and cows at a residence or property). The rescue of livestock (which includes commercial animals found on farming and breeding enterprises) will be coordinated through Animal and Agriculture Services Functional Area.

5.11 RESUPPLY

5.11.1 **Strategy:** Coordinate resupply to towns and villages isolated by flooding to minimise disruption to the community.

5.11.2 **Actions:**

- a. NSW SES will advise communities and businesses if flood predictions indicate that areas are likely to become isolated, and indicative timeframes where possible.
- b. Retailers should be advised to ensure sufficient stock is available for the duration of the flood.
- c. When isolation occurs, NSW SES will establish loading points where retailers can instruct suppliers to deliver goods.
- d. NSW SES will endeavour to deliver mail to isolated communities but may not be able to do so according to normal Australia Post timetables.
- e. NSW SES will assist hospitals with resupply of linen and other consumables where able.
- f. NSW SES may request resupply assistance from supporting agencies.

5.11.3 **Strategy:** Coordinate resupply to rural properties isolated by flooding.

5.11.4 **Actions:**

- a. When requested, NSW SES will establish a resupply schedule and coordinate the resupply for isolated rural properties;
- b. NSW SES will provide local suppliers with designated loading points. Resupply items are to be packaged by the supplier; and
- c. Isolated households unable to afford resupply items will be referred to Welfare Services Functional Area for assistance.

5.12 **RETURN**

5.12.1 **Strategy:** Coordinate the safe return of communities to flood affected areas when the immediate danger to life and property has passed.

5.12.2 **Actions:**

- a. NSW SES Incident Controller will determine when it is safe to progressively return in consultation with the relevant Emergency Operations Controller and supporting agencies, considering the impact on the following:
 - Access and egress;
 - Communications;
 - Power supply;
 - Gas supply;
 - Infrastructure damage;
 - Hazardous materials; and
 - Public health risks (including sewerage).
- b. NSW SES Incident Controller will specify the level of access to affected communities as the following:
 - Not suitable for access;
 - Limited access by emergency services and response agencies;
 - Limited access by residents and/or business operators; or
 - Full access.
- c. NSW SES Incident Controller will issue an Advice Warning advising 'Reduced Threat: Return with Caution', when the immediate danger to life and property has passed for areas assessed as safe; and
- d. The NSW SES will facilitate the return of evacuees to their homes.

5.13 **END OF RESPONSE OPERATIONS**

5.13.1 **Strategy:** Conclude response operations.

5.13.2 **Actions:**

- a. Response operations will conclude when:

- The physical impact of the flood has ceased;
- All requests for assistance related to the flood have been completed;
- The need for warning and evacuation no longer exist;
- There is no further likelihood of rescuing people;
- Resupply is no longer required (resupply operations may occur concurrently with the recovery phase);
- Response to fire and hazardous material incidents have concluded (not including subsequent clean-up of contaminated sites); and
- All affected areas have had a 'Reduced Threat: Return with Caution' issued.

5.14 POST IMPACT ACTIONS

5.14.1 **Strategy:** Learnings from the event are used to inform recovery and future events.

5.14.2 **Actions:**

- NSW SES will continue to engage with communities after significant floods through convening one or more community forums, workshops or other opportunities to provide communities a chance to provide feedback, address any concerns and provide input into the recovery process. These will typically include other agencies such as the Bureau of Meteorology, Welfare Services and Blacktown City Council representatives;
- NSW SES will ensure that damage assessment information is provided to the relevant Emergency Operations Controller to inform the recovery impact assessment;
- NSW SES will conduct After Action Reviews, wherever possible, within three weeks of the end of response operations, which will involve all stakeholders. Findings will be shared and incorporated into improved disaster resilience planning;
- NSW SES will undertake/coordinate a comprehensive review of intelligence and plans following significant flood events.

5.14.3 **Strategy:** Participate in post flood data collection analysis.

5.14.4 **Actions:** NSW SES will work with the NSW Department of Planning and Environment (DPE) and Blacktown City Council on post flood data collection analysis including review of flood intelligence where necessary.

6 RECOVERY OPERATIONS

6.1 INTRODUCTION

6.1.1 Recovery is the process of returning an affected community to its proper level of functioning after an emergency. It will generally commence simultaneously with the Response phase.

- 6.1.2 Recovery operations will be initiated and conducted as outlined in the NSW State EMPLAN and as further detailed in the NSW Recovery Supporting Plan.
- 6.1.3 Flood recovery operations for the Blacktown area will be coordinated as per the recovery arrangements in Part 8 of the Hawkesbury Nepean Flood Emergency Sub Plan.

6.2 NSW SES RECOVERY ROLE

- 6.2.1 **Strategy:** NSW SES will support recovery operations and established Recovery Committees.
- 6.2.2 **Actions:**
- a. NSW SES will provide representation to Recovery Committees as required and may have an ongoing role in the Recovery phase through its community engagement personnel;
 - b. NSW SES roles on Recovery Committees may include providing information about any continuing response, guidance on mitigation strategies and general advice and assistance to the committee as a subject matter specialist and or expert;
 - c. NSW SES will provide information to the NSW Reconstruction Authority to support applications to Treasury for Natural Disaster Relief and Recovery Arrangements;
 - d. The NSW SES, in conjunction with a Recovery Committee, will provide a service to support the information needs of a community immediately following a flood; and
 - e. NSW SES and where required supporting agencies will assist with clean-up operations after floods, where possible when resources and personnel permit.

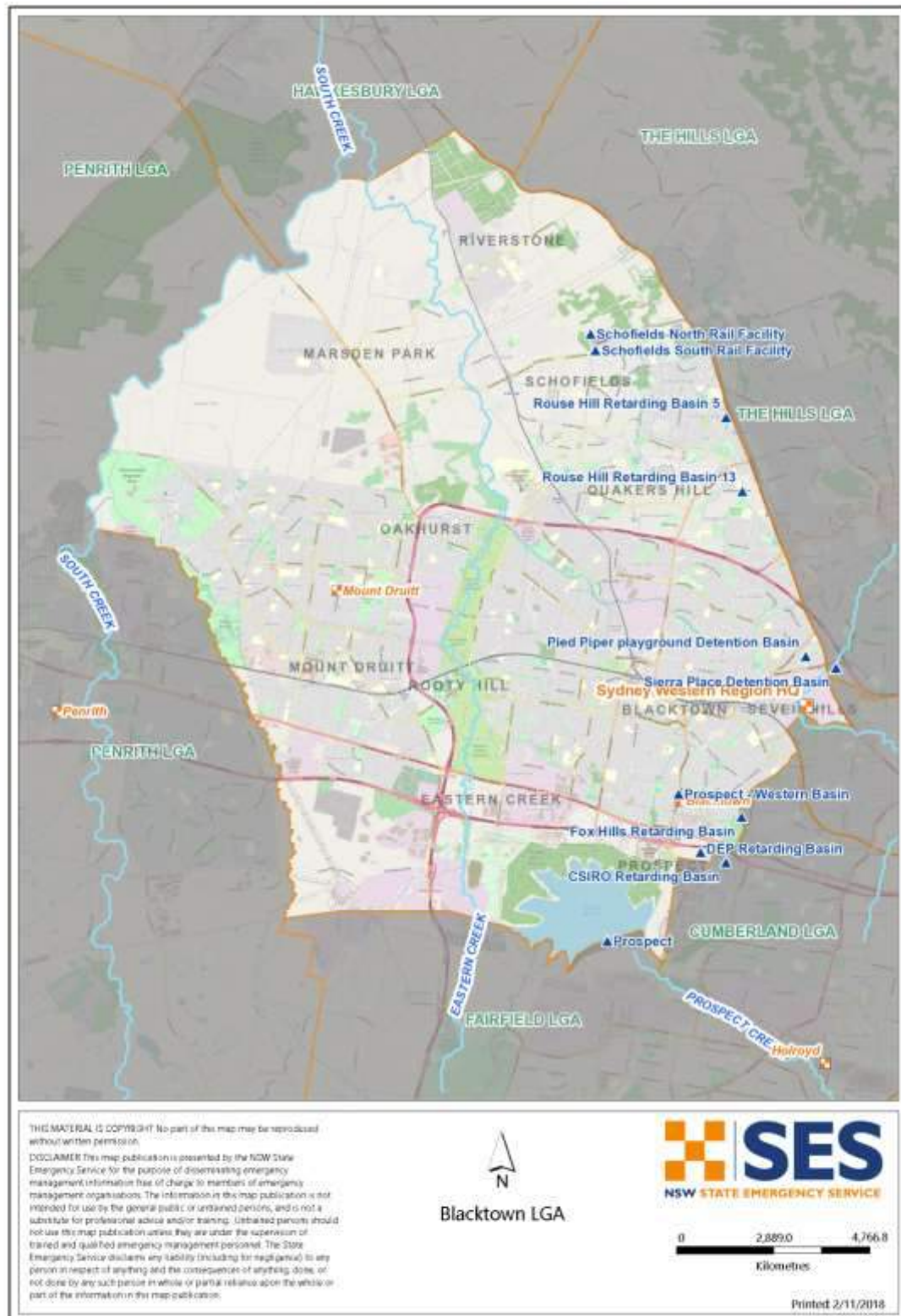
7 ABBREVIATIONS

- 7.1.1 A full list of abbreviations relevant to flooding can be found in Section 7 of the [NSW State Flood Plan 2018](#).

8 GLOSSARY

- 8.1.1 Common emergency service terminology can be found within the [Australian Disaster Resilience Glossary](#).
- 8.1.2 Readers should also refer to [NSW State EMPLAN Annex 9 – Definitions](#).
- 8.1.3 For a full list of flood definitions refer to the [Supporting Document - State Flood Plan Glossary](#).

Appendix A – Map of Blacktown City LGA



Appendix B – Roles and Responsibilities

The general role and responsibilities of agencies in emergency management are described in [NSW State EMPLAN](#).

The roles and responsibilities of agencies in flood are described in [Appendix A to the State Flood Plan 2018](#).

Additional roles and responsibilities under this plan are detailed below:

Community Members	Preparedness • Understand the potential risk and impact of flooding; • Prepare homes and property to reduce the impact of flooding; • Understand warnings and other triggers for action and the safest actions to take in a flood; • Households, institutions and businesses develop plans to manage flood risks, sharing and practicing this with family, friends, employees and neighbours; • Have an emergency kit; and • Be involved in local emergency planning processes. Recovery • Assist with community cleanup if required and able to do so. • Participate in After Action Reviews if required.
Child Care Centres and Preschools	• Potentially impacted childcare centres and preschools are to be contacted by the NSW SES in the event of possible flooding or isolation. • When notified the childcare centres and preschools should: a. Liaise with the NSW SES and arrange for the early release of children whose travel arrangements are likely to be disrupted by flooding and/or road closures. b. Assist with coordinating the evacuation of preschools and childcare centres.
Private companies or other organisations	• Assist with the provision of: a. Transport to assist evacuations; b. Spontaneous volunteers to assist NSW SES.
Service and sporting clubs	• Assist with: a. Passing on links to official messaging to your members; b. Requesting members Spontaneous volunteers.
Aboriginal organisations or groups	• Act as the point of contact between the NSW SES and the community. • Inform the NSW SES Blacktown Local Commander about flood conditions and response needs. • Disseminate flood information, including flood and evacuation warnings, to the community.

Health Services Functional Area	The roles and responsibilities for Health Services Functional Area are outlined in the Health Services (HEALTHPLAN) Supporting Plan. Roles and responsibilities in addition to the Supporting Plan are: • Ensure that appropriate business continuity plans are developed for essential health infrastructure and are activated during floods including aged care facilities.
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